California Journal OF SECONDARY EDUCATION

This Month

- Emotional Factors in Teaching
- Orientation of New Teachers
- New Materials in Science Education
- Behavioral Goals of Secondary Education

A Symposium on

CALIFORNIA'S MOST REQUIRED SUBJECT:
PHYSICAL EDUCATION

VOLUME 33, No. 1 JANUARY 1958

Next Month a Symposium on
PROBLEMS OF SCHOOL-LEAVING AGE REQUIREMENTS
IN SECONDARY EDUCATION

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A Symposium Next Month on Problems of School-Leaving Age Requirements in Secondary Education

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EDITORIAL

SPUTNIK AND THE HIGH SCHOOLS

Whenever a crisis confronts the American people, someone, sooner or later, blames the high schools. Alas—or is it fortunate?—the high school is neither so powerful nor so impotent as its critics suggest. The rumbling criticisms of secondary education are cascading into a roaring crescendo with the Russian launching of space satellites Sputnik I and II. An example of the criticism is that voiced recently by Harold Urey, distinguished scientist. An Associated Press dispatch reports him as stating that the Russians are overtaking us scientifically, and that one, perhaps basic, reason is the neglect of our high schools, staffing and supporting them inadequately, and giving too little attention to science, mathematics, and languages.

The tenor of the criticism is that not only have the high schools given insufficient attention to certain subjects, but also that they have required too little rigorous intellectual effort of pupils, thus discouraging able students from further education and from careers in the sciences. Reference is made to the fact that foreign languages, physics, and to a slightly lesser extent chemistry, have been dropping out of the high school curriculum for a long time, and to the fact the high schools abroad, especially those in Europe, are superior in training pupils in these academic fields.

How sound are these criticisms? How responsible is the high school for whatever failure America has suffered in the scientific realm? How does the American high school stand up to the competition of the European and Russian secondary schools? These are serious questions that require thoughtful attention. This is not the time to become defensive about the American high school. What is required at this time is sober thoughtful discussion of high school education by all persons, both those inside and outside of the profession, who are deeply concerned with the condition of education, indeed with the condition of man in this mid-twentieth century period. American secondary education is undergoing the most critical scrutiny in its history.

In the discussion of America's position in the world race for political, social, and scientific leadership, which is a most complex problem, it should be helpful to remember that the schools are only one part of the culture. The schools standing at the very center of the whirling vortex of social life often become the focal point of wider social conflicts and pressures. If the culture as a whole values the watching of sports contests, then the school program will be similarly oriented. If, on the other hand, every normal male and female, youth and adult, tries to get out onto the playing field every Saturday to play cricket, hockey, or rugby, with only a few remaining as spectators, a situation recently noted in a visit to New Zealand, then the

school program will reflect this condition. When society accords scientists and other intellectual leaders places of honor above football heroes and movie stars, then high schools will move toward greater intellectual emphasis. The recent *Life* magazine article which reported on the displaced college football star may be a straw in the wind. In the current discussion, it is well to remember that the school exists in an environment, takes its flavor and its directions from that environment.

It is also true, however, that schools are levers by which we attempt to improve the conditions under which we live and work. The schools are instruments which enable individuals to become critically aware and conscious of personal and social affairs, which equip individuals with skills and understandings necessary to improve themselves and society. Hence, the school performs its dual role of transmitter and improver of the culture. But since the school is a part of the culture it can never move far beyond or away from it.

In one sense, the criticisms of the school are a barometer for the temper of the times. What we say about our schools may serve as a clue to our fears as to what is wrong with our way of life as a whole. Even though such criticism is painful, particularly for the educator, it may be a necessary part of the process of social criticism by means of which social institutions are kept responsible to the needs of the people.

The meaning of the eerie beep, beep, beep, of Sputniks I and II to the high schools and to the American public educationally speaking, is, it seems to us, that another people has decided (as we did almost a century ago) that it is a sound and necessary social policy for all youth to be educated up through secondary school. The Russians in adopting this concept recently have had the advantage of being able to build a whole new educational structure from the ground up in modern times. How great an advantage is clearly suggested by the great new physical structures arising amidst the rubble of bomb devastated European cities. The rest of the world is moving in the direction of providing secondary education for all youth, but not as rapidly as the Russians. The view is that pupils shall work longer hours and more days per week. The intellectual pace is faster, and the emphasis greater on science, mathematics, and language.

One urgent question now raised in this country is whether we are doing as much, and as well, with what we have as we can. Even though everyone agrees that more resources must be put into education, this alone will not be sufficient. We must do better with what we now have. Complacency about past achievements cannot and must not be tolerated.

A further insistent question concerns a possible need to shift the direction of secondary education. In providing for a prolonged secondary education for everyone, the United States developed a broad curriculum and an extensive extra-curriculum, with emphasis upon physical, social, and emotional, as well as intellectual components. The European tradition was almost solely upon intellectual development for the selected few destined for the universities and the professions, and for vocational training and earliest

possibile entry into the labor market for the great remainder. While the full picture of the new Russian system is not entirely clear as yet, reports suggest that in certain particulars they have taken more from the European tradition than from ours. Their present goal, largely achieved, appears to be ten years of universal compulsory schooling, from ages six to sixteen, which is roughly comparable to that in the United States.

The reason given in this country for departing so far from the European tradition has been that the same type of education cannot be given to the masses—indeed was inappropriate—as to the selective few. This argument was advanced from the beginning, for the Latin Grammar School was abandoned almost before it became established. We simply did not believe that the narrow academic training, especially in classical languages, provided in the selective secondary schools of Europe was appropriate for free men on a new continent.

But the cast of the argument is now changing. What we are honestly asking ourselves, partly prompted by the dramatic example of the Russian achievement, exemplified in Sputnik I and II, is whether the American high school should not be made more rigorous intellectually *for everyone*. Should not *everyone* receive more basic scientific and mathematical training, and should not proficiency in a second language be a desirable goal for a substantial number of youth? But in moving in this direction, we do not want to lose our achievement of a common school that does not promote class lines, or of the humanistic values of a broader curriculum which provides liberally for the fine and practical arts.

If we are to achieve both depth and breadth in education, without postponing indefinitely the entry of youth into the world of work or the universities, the only alternative is to become more effective and efficient than ever before in the conduct of secondary schools.

Neither the educator nor the critic should charge the American high school with failure. For the records show unmistakably that it has not failed. The current crisis may serve to emphasize that swiftly moving events require a rapid, fresh look at educational problems, a fundamental reconsideration of what we are trying to accomplish, and of our methods, and that this is not the time for timid tinkering.

A bold new age of adventure opens as the modern Columbus prepares to explore outer space. The potentialities for the development of the human mind and spirit are more breathtaking than at any time in human history. Having unlocked the secret of the atom, by which the physical burden of the ages has been at last lifted from the backs of men, we may in the mid-twentieth century be about to embark upon a new and even greater renaissance than that following the middle ages—if we but have the intelligence and the heart to live peacefully together.

—R. N. B.

Emotional Factors in the Teacher Education Process

By I. N. BERLIN*†

The emotional stability of classroom teachers has been a growing concern of school administrators. Simultaneously educators in teachers' colleges have become increasingly aware of the need for careful selection of teacher candidates to obtain the most mature trainees. The emotional stresses upon the student teacher resulting from difficult classroom situations, or, conversely, from practice teaching under ideal circumstances, only to find himself faced with very trying classroom settings after receiving his credentials, seems to be of less concern to educators.

Selecting Teachers

My own experiences both in psychotherapeutic work with children and phychiatric consultation with teachers and school administrators have increased my awareness and aroused my interest in some of these problems of school people. My effort to clarify my own thinking about these problems has resulted in the point of view which is presented here. In trying to think through the problem attendant on teacher selection, I speculated about the qualities necessary for the well adjusted teacher. I became aware that these were qualities of personality that would make for a good doctor, nurse, social worker, psychologist, or any other professional person who works with people as individuals or in groups—the difference being the teacher's preference for teaching as a satisfying way of earning his livelihood. In speculating about any special qualities that might be necessary for work with children, I could not be sure what these special qualities would be.

The concern of personnel officers in teachers' colleges and school systems, with how one can be certain that one has selected good teachers, is shared by people responsible for selection of trainees in psychiatry, child psychiatry, psychoanalysis, psychology or social work. It may be reassuring to personnel people to find that those who know most about personality from their daily psychotherapeutic work, the psychiatrist and psychoanalysts, are also dissatisfied with their selection methods and with their failures in candidate selection. Since 1948 a research project on the selection of psychiatric residents has been going on at the Menninger Foundation. A summary of the findings to date has been recently published.[1] Their findings show that single interviews with experienced psychiatrists and psychoanalysts have

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little predictive value, that a single psychological test, like the Rorschach, T.A.T., etc., is even less helpful predictively. They discovered that the most valuable information could be gathered from examining the actual performance of candidates in the same or similar work. Thus, past performance gave a more accurate estimate of what could be expected in the future than any other single method. It is of interest that the analysis of data from interviews and psychological tests revealed that interviews often failed to perceive the degree of psychopathology present; on the other hand, psychological tests revealed much of the psychopathology but little of the integrative and adaptive aspects of the personality.

In a recent paper by Walker, Botha and Barbato, entitled, "The Psychiatric Interview and Teacher Training,"[2] they wrote that the good teacher, like the good parent, should be a warm and firm person. They concluded their paper by saying, "We are convinced that our present level of knowledge does not permit us to predict accurately whether or not an individual may be a successful teacher." These psychiatrists suggested the use of a psychiatric interview early in the college experience of prospective teachers so that the obviously disturbed students could be helped to choose another profession. They also felt that in the course of the survey they could help the student who had neurotic manifestations which might interfere with their teaching, to accept psychotherapy. The survey was used to help both psychiatrist and student assess the student. It covered the areas of motivation—why the student was interested in teaching—an effort was made to evaluate the positive aspects, such as: good identifications with parents and respected teachers, previous successful work with children in scouts, campfire girls, etc., and the negative aspects which indicated a need to live out in his pupils his own unrealized emotional experiences. The authors speculated whether the student who looked on teaching as a way of earning a living to make possible creative work such as art or writing, might, despite "poor" motivation, be a better teacher and less neurotic than the teacher who "just loved children." The psychiatrist explored the psychosomatic illness in the student's lifetime, and tried to evaluate his current living in terms of school, work, marital and sexual adjustment, his financial independence, family relations and social activities. Past work, school and military history were reviewed. In addition, the interviewer tried to get some feelings of the student's tendency to extreme mood swings and how he characteristically reacted to stress. As previously mentioned, these psychiatrists felt they could not predict from their data which student would make a successful teacher. It seems to me easier to determine those who would not do well in teaching. Thus, the student who appears to prefer teaching because he feels it is safer, i.e., less threatening, to work with small children rather than with adults, will usually give some history of severe and painful experiences with adults in his own childhood and consequent life of isolation from peers, lack of participation in class and school activities, and withdrawal from most interpersonal relationships. When such a candidate reaches practice teaching he is made very anxious by any hostility or aggression in children and either

withdraws or is anxiously punitive. In general, lack of spontaneity, rigidity and frozenness, obsessive attention to detail, may indicate defenses against the eruption of hostile, aggressive, and infantile feelings. To candidates who have such massive defenses the classroom may be a very threatening situation.

On the integrative side, candidates who have varied interests, friends and social activities, are less likely to live out unsatisfied needs through their students. A realistic appraisal of both the advantages of teaching and its disadvantages, in terms of security and vacations, in contrast to low pay and heavy emotional demands, gives one a feeling of the maturity of the candidate. The past school and work history gives one clues about the student's ability to follow through and complete a job. Warmth and spontaneity in relating to people and a feeling of respect for self and children are not easy to evaluate except in an actual teaching situation or through continued contact with the student. It seems to me important to differentiate between the presence of some neurotic traits, and the presence of those neurotic traits which are likely to interfere with teaching. Some psychopathology can usually be uncovered, but one must evaluate such findings in terms of the individual's total integration.

It occurred to me, after this discussion of problems of teacher selection, in the light of inadequate salaries and the current teacher shortage, that even if we develop criteria for selecting teachers, the choice may not be very great. It may thus be necessary for administrators to learn how to help individuals not so well suited to the job to develop into adequate teachers.

Weaknesses in Training

In my work with new teachers I have frequently heard complaints about the disparity between the practice teaching situation and the realities of classroom teaching.[3] Teachers often wondered aloud why the principles of good pedagogy which were so vivid, clear, and logical as enunciated by the professors and demonstrated by master teachers seemed not to work in the classroom, why discipline problems in the flesh seemed not to yield to the tenets and methods enunciated in the teachers' college. I also tried to understand why these particular new teachers were having problems in the classroom and other new teachers seemed to have less difficulty in their job.

Differences Between "Successful" and "Unsuccessful" Trainees

In the course of some seven or eight years of consultation with teachers, it became clear to me that the new teachers who did well in difficult classroom situations tended to be direct, firm, and honest with their pupils. They seemed to be task oriented, their job was to teach these youngsters. Often they "appeared" to be insensitive to the emotional problems of their students, not to be concerned with counseling them, not to be interested in whether the pupils *liked* them as teachers. They were primarily interested in helping their students learn. Paradoxically, their students said both that these teachers were disliked because they were so tough, severe, etc., and

demanding of performance, and later in retrospect, that they liked their classes because they learned in them. I discovered that often these successful new teachers had had prolonged experiences with children prior to teaching. They'd worked in child care, in Scouts, Camp Fire Girls, summer camping, or came from large families. In contrast the new teachers with troubles in the classroom were relying primarily on what they had learned in teacher training. They took from their courses in psychology and educational methods certain concepts about child development and discipline which were swallowed whole and not tempered by much direct experience. Thus they all seemed to be afraid of hurting, damaging, or stunting in some way the psyches of their students. They seem to have absorbed from their professors, as a goal of successful teaching, love for their students. Implied in this goal was that the teacher's love would be reciprocated, and learning would then go on blissfully in such an atmosphere. These teachers were therefore dismayed to find how difficult it was to "love" certain students and they reported how frightened and secretive they were about the kinds of feelings they discovered within themselves. This emphasis on how good teachers "ought" to feel in contrast to the human feelings discovered within one's self in the process of classroom teaching of difficult, defiant, and negativistic students seemed to me to be a major factor in the teacher's difficulties in the classroom. Further investigation with these teachers and subsequently with student teachers revealed that in most teacher-training curriculums there is little if any emphasis on helping the trainee anticipate, understand, and evaluate his own feelings which may be aroused in trying situations. The attitudes the teacher has about himself and how he should feel are conditioned largely by the attitudes of his professors. He thus comes to believe that to have angry, thwarted, hateful feelings is pathological and means that there is something wrong with him as a person. He feels he must hide the knowledge of such feelings from others else he will be thought to be "bad," not fit for his job. Thus the absence of discussion and attention to all the human feelings aroused in a teacher by the often difficult classroom situations current in our culture, tends to undermine the teacher's feelings about his own worth as a human being, and thus his effectiveness as an instructor.

When these beginning teachers heard from the psychiatric consultant, administrators, and experienced teachers that feelings of rage, impotence, anger, etc., were understandable human feelings, that such emotions could and needed to be shared with others, they felt less burdened and less alone in their problems and functioned more effectively in the classroom.[3]

Trainees Need Emotional Insight

From these repeated experiences, I came to feel rather strongly that a regular part of all teacher training should be devoted to helping the trainee become aware of and understand his human emotions. His professors need to demonstrate that they too, as human beings have experienced certain disagreeable feelings of impotent rage, anger, disgust, and frustration while

teaching. The professor's own verbalization of his feelings and experiences would give the trainee the feeling that such emotions could be discussed and assessed with colleagues and administrators. He would come to know that these feelings can be dealt with in an integrative manner. The risk of not understanding and working through such feelings is that efforts at repression, not only increase tensions and anxiety so that the work is difficult, but also that such feelings may erupt around trivial incidents into hostile, retaliatory, irrational behavior harmful to the student-teacher relationship and damaging to the teacher's self-esteem. Our experience is that new teachers, helped to accept, understand and work with their own turbulent feelings, teach better, i.e., with less strain and become effective teachers where previously in the same school system we understood they often quit teaching, feeling that the emotional drain was too great.

Personality Structure Not Fragile

Another factor in the student teacher's feeling about himself often stems from the emphasis in child development courses on the effects of psychological traumata on the child's personality.

This emphasis does not take into account the clear evidence in recent years, that the personalities of children are not easily modified after their pre-school years. Also, that no single traumatic event, but the totality of the child's relationship with parents and parent figures is responsible for his character structure.[4] Further, that where the child's early experiences with adults has resulted in personality problems, the child needs to find in his teachers a kind of steady attention to the tasks to be done which will help him learn to learn.[5]

Personality problems in children which manifest themselves in learning difficulties and antisocial behavior usually stem from experiences with troubled parents, parents who have problems in deriving pleasure from learning and gratification from their own accomplishments. They seem to need to have their satisfactions in living provided for them by others. Thus the child has never experienced any steady consistent help in learning or any continued expectations of integrative behavior. Parents who, because of their own neurotic troubles, have not been able to help their child find satisfactions in accomplishment of tasks consistent with the child's maturing capacities seem alternately to expect more and to accept much less than the child can actually do. The child's resulting dissatisfactions and disappointments are often seen in rages, temper tantrums, or sullen withdrawal. The child often mirrors the parents' unpredictable behavior, uncontrolled anger, or apathetic resignation in the face of tasks to be done. Thus the teacher's steady focus on the learning to be done and the satisfactions to be obtained from successful learning is a new and integrative experience for the child.

As teacher trainees become more consciously aware of the spectrum of feelings within themselves, they feel less frightened and estranged from the feelings expressed by their difficult students. The teacher thus can be more

helpful to the student when the student's behavior evokes neither anxiety, hostility, or withdrawal. He is then helped to focus on the job to be done in the classroom and thus the child experiences that in doing the school work he finds satisfaction in the mastery of subject matter and he feels better about himself, less hostile, friendlier, and thus literally more lovable and more loved. The student may thus experience with his teacher the most important lesson to be imparted in school. He may gradually learn that by working on the tasks at hand he feels better about himself.

Mental hygiene for teachers logically begins in the teachers' colleges. There the attitudes of professors which might help trainees accept and understand their own feelings as teachers, needs emphasis and clarification. The focus on the self understanding of teacher trainees could be usefully coupled with helping the trainees better understand their role with emotionally disturbed students. The trainees' awareness that the most effective aid for emotionally upset pupils comes from helping the pupil experience the satisfactions resulting from learning and mastery of subject matter, is good mental hygiene for both the student and the teacher.

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MY PHILOSOPHY OF COACHING ATHLETICS

I believe that each boy I coach must be respected for his individual worth and not as a tool for furthering my career.

I believe that athletic coaching is that part of teaching which can help each boy develop his physical, mental, emotional and social well-being more than any other school experience.

I believe that I must be an example of sound character, exhibit intellectual judgment, display true sportsmanship, foster the democratic principles of our country, show confidence in the ability of my team to think for itself and avoid favoritism toward any boy if I am to teach for any of these aforementioned characteristics.

I believe that if I am to develop any leaders through coaching athletics I must present vital experiences for each boy so he may develop the characteristics of a leader.

I believe that I am responsible for providing experiences which will help each boy on my team develop moral and ethical character, culture, correct health habits, economic responsibility, respect for the rights of others and personality.

I believe that I must provide experiences which will enable each boy to develop his organic and skeletal system, neuro-muscular skills and intellectual skills.

I believe that I must give formal and informal guidance to the boys of my team so that they may give self-direction to their lives.

I believe I must provide experiences which will enable each boy to overcome fear and handle his body skillfully for his own safety as well as the safety of others.

I believe that I must specifically teach for any of the values of sports if these values are to be carried over to out of school use by my boys.

—Bruce D. Rolloff in the *Idaho Education News*

Behavioral Goals of General Education in High School

By WILL FRENCH* and Associates†

The September 1956 issue of the *Bulletin* of the National Association of Secondary School Principals announced the initiation of a survey study to describe the goals of general education in high school in terms of pupil behavior. Proposed by the National Association of Secondary School Principals, the project was made possible by the aid of the Russell Sage Foundation, managed by the Educational Testing Service, and enhanced by advisory help of the American Association of School Administrators, Association for Supervision and Curriculum Development, and the United States Office of Education. The project was completed in April of 1957 and the report was published by the Foundation in October. This article gives a brief overview of the project report.

This report considers *general education* as a program which helps to supply the common learnings needed by youth who are to live competent and satisfactory lives in our society. It assumes that this program should be required of all youth, not only as a means of furthering their growth but also for maintaining and improving our democratic society. It presumes that an expanding program of specialized education will run concurrently with this general education program throughout the junior-senior high school period. This specialized program should meet the needs and interests of individual students rather than the common ones met by the general education program.

Another concept basic to the report is that the outcomes of general education are best described in terms of changed and improved behavior, a view commonly accepted by those who have been most active in the general education movement. This report undertakes to define, more specifically than has been done before, the behavioral goals high schools can reasonably be expected to seek through their programs of general education.

The report holds that what is now the required-of-all program in high school, though much improved in the last twenty-five or thirty years by the use of better methods of teaching and by the better selection of content, is still not as desirable or as effective a program of general education as is needed when judged in terms of its effects on the behaviors of students. It holds that the further improvement of general education in high school will be encouraged and facilitated by the identification of specific examples of the behavioral goals of general education which are implied by such state-

* Emeritus Professor of Education, Teachers College, Columbia University.

† Will French and Associates, *Behavioral Goals of General Education in High School*, N.Y. Russell Sage Foundation, 1957. 505 Park Avenue. pp. 247. $4.00.

ments of educational objectives as those formulated by the Educational Policies Commission. The report, therefore, presents extensive, but not inclusive, lists of illustrative behaviors suggested by twenty-four consultants and approved by at least three-fourths of the forty-one "reviewers."[1]

The illustrative behaviors are stated in terms of what may be reasonably expected of superior high school seniors. In many cases they call for mature behavior on the part of this group of seniors and are meant to challenge them. While these levels of behavior are not likely to be reached by less mature seniors or by the younger students, they mark directions of behavioral growth for all students. Less mature behaviors exhibited by these students should be consistent with stated behavioral goals, even though the highest levels cannot be reached. Some indications of the levels and kinds of less mature behaviors accepted as satisfactory for these younger and less mature students are listed as "developmental equivalents." These can be used by teachers to evaluate behaviors which are less advanced than those called for by the goals but consistent with them. They illustrate behaviors which schools should accept as indicative of satisfactory achievement on the part of many students.

School systems and individual staff members are encouraged by this study to evaluate their present programs of general education in terms of whether desirable behavioral changes are being produced or not. The report provides a form for this evaluation. This form can be used to evaluate such aspects of general education as citizenship education or health education, or to evaluate its whole general education program. Those engaged in revising a school's general education program will have more specific indications of the kinds and levels of behavioral growth which changes in the program should endeavor to produce. Those engaged in developing general education tests or in writing textbooks will have concrete indications of the behavioral competence which should be sought through general education in high school.

In summary, the report's basic contributions are: its emphasis on the improvement of students' behavior as the end-product of general education; its recognition of mastery of content as a means of learning but not as a measure of learning; and its listing of specific illustrative behaviors which are implied by the more general statements of the commonly accepted objectives of general education.

[1] The details concerning the organization of the project are covered in the September 1956 issue of *The Bulletin* of N.A.S.S.P.

AMERICAN EDUCATORS ABROAD

Nearly 1,000 American educators will be on assignment in forty-six countries next year. Their task: to work with ministries of education on elementary, secondary, and vocational-education problems. This host of educators operates under the aegis of the International Cooperation Administration. Its education section has a budget several times larger than that of the U.S. Office of Education.

Teacher Orientation and Assistance in Pasadena

By WILLIAM G. NORRIS*

The current teacher crisis is generally believed to be a problem which will continue to plague school administrators for years to come. With teacher-training institutions unable to meet the growing demands of the profession, help has been sought through the recruitment of college educated personnel in other vocations. The inadequate preparation of many of these teachers has created new problems of teacher orientation, and emphasized the need for a sound program of supervision and in-service training. In this article will be considered some of the techniques being employed in one school district to meet the situation.

The new teacher in Pasadena is greeted by a letter in late summer from the superintendent of schools. In it he outlines the plans for the initial week of orientation. This schedule begins with a visit to the particular teacher's school, followed by general meetings, luncheon, and introduction to the community. Brochures explaining the personnel and services of the central office are also distributed. This week of introduction to the school, staff, and community is culminated by a general meeting for all school personnel in which the educational program for the year is outlined.

At the heart of the in-service program is the supervisory assistance rendered by the central office. This service is divided into elementary and secondary levels, and is under the leadership of an assistant superintendent of instruction. A coordinator and three assistants attend to the special needs of the elementary teachers, while secondary problems are handled by a coordinator and three special subject area supervisors or assistant coordinators. These personnel do not rate the teachers, but follow the usual practice of being available for whatever help they can provide.

It is the duty of the principal or department chairman to implement the program of supervision at the local school level.. They render valuable assistance to the beginning teacher through a planned program of consultation and class observation. They often suggest intra-departmental visits to "master teachers" from whom many helpful ideas can be obtained. The new teacher becomes accustomed to observing others and is subsequently less disturbed when his own classroom is visited. The principal also completes rating blanks for all probationary teachers which he discusses with them, in order to point out if improvement may be needed.

Another major service which the Division of Instruction furnishes to teachers, new and old alike, is that of providing special consultants. This continuing program enables teachers to receive institute credit for meetings which have significance to them. Consultants may confer with the staff in individual schools or address city-wide groups in after school sessions.

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Similar opportunities are also available in nearby districts which provide comparable in-service facilities.

Teachers participate actively in the summer workshops which were inaugurated in Pasadena four years ago. They operate for three weeks, providing optional university credit. During the morning hours, which are reserved for elementary teachers, there is an opportunity to observe or to participate in a demonstration school. Elementary and secondary school teachers work in special study groups and present to the entire assembly the results of their research. In addition to improving their teaching skill, teachers in these meetings have the opportunity to work together and to know more intimately fellow members of the profession.

Many of the newer teachers are especially interested in improving their competence through professional study. An excellent curriculum library, maintained by the Division of Instruction, contains significant printed material in all of the subject areas. The city library, with its several branches, is well stocked with educational literature. There are four colleges and universities within easy driving distance where graduate work is offered in late afternoon and evening classes. In addition, extension courses offered in Pasadena and the immediate vicinity provide the same service with more convenience.

New teachers to Pasadena are impressed with the efficient and complete audio-visual service available to them. Daily pick-up and delivery of materials releases the teachers from this time-consuming chore. Supervisors and coordinators are also ready to suggest other free instructional aids which can be obtained from industry. Such local institutions as California Institute of Technology are happy to loan their many excellent films or other teaching devices. Field trips to such nearby cultural areas also broaden immeasurably the learning process.

An example of a formal class which has met with enthusiastic reception is that currently being offered to elementary teachers. It was first given in the regular junior college program, but is now open to evening students for possible university credit. It provides for many new teachers the first arithmetic instruction which they have received since their own elementary education. This course, taught by the head of the junior college mathematics department, provides the type of information so desperately needed by teachers with sketchy or inadequate subject-matter backgrounds.

In this brief description of the types of services which are available to the new teachers, Pasadena lays no claim to uniqueness, as community resources are shared and local facilities equalled or surpassed by other neighboring school districts. The purpose has been to impress administrators and teachers with what can be done to upgrade the certificated personnel who will staff schools in the years to come. No new teacher in this city can justifiably complain that he lacks assistance in his work. Similarly, no principal can justifiably allow a teacher to flounder in difficulty when adequate services, material, and resources are readily available which can raise him to a competent and satisfying professional level.

Current Events and Materials in Science

By PAUL DeH. HURD*

Of the many concerns expressed about secondary education in recent months none have been more prominent than those directed toward science instruction. The issues have not always been isolated nor the problems clearly defined. Current discussions frequently indicate the belief that high schools are not doing their part in stimulating young people to make science their career. It is pointed out that as science grows in importance in our culture, it becomes equally important that we have more scientists. The need for new approaches to the curriculum and the teaching of secondary science are indicated.

Over the past two years the literature that has developed on the problem is tremendous. At present there are more than fifty national committees which include as one of their major purposes the improvement of science teaching. Half of these committees have published the results of their study or thinking. Any attempt to derive adequate generalizations from these reports at this time is premature.

Some of the foci of attention over the past year have been: (1) modernization of course content, (2) "appreciation of science" and the "impact of science on society" as major objectives, (3) providing opportunities for the rapid learner, (4) the development of more challenging laboratory work, (5) career guidance, and (6) pre-service and in-service training of science teachers.

The items selected for review represent only a fraction of those published since the last summary of science materials. They are intended to represent not only a cross section of the literature but also, in most cases, publications that deserve a place in the professional library of a school.

Teaching Secondary Science—General

Teaching Science in the Secondary School. Burnett, R. Will. Rinehart and Co., Inc. New York. 1957. xii + 381 pp. $5.50.

Science Teaching in Secondary Schools. Richardson, John S. Prentice-Hall, Inc. Englewood Cliffs, New Jersey. 1957. xiii + 385 pp. $6.50.

A decade has passed since the publication of the last completely new book on secondary science teaching. The two books reviewed represent a serious effort to present an over-view of recent theory and practice in science teaching. Both books were written primarily to assist the beginning teacher to do a better job of teaching. Experienced teachers will find these books valuable as a source of information and ideas on recent developments

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in science teaching. Each author is a professor of science education in his respective university: John S. Richardson at Ohio State and R. Will Burnett at the University of Illinois.

These books are organized around the topics usually considered in a curriculum and instruction course in science teaching. The social and psychological backgrounds of science teaching are explored and interpreted in terms of modern curriculum practice. The development of teaching plans, the use of audio-visual aids and resources, teaching techniques, laboratory procedures and the evaluation of instruction are covered. Each author has included special sections on providing for the gifted student in science and on the professional growth of the science teacher.

Richardson's book contains an extensive description of science facilities in schools. Burnett's chapter on "Combatting prejudice through science teaching" is timely.

The similarity of the science teaching areas covered by these two books does not mean they are equivalent in content. Each author expresses a point of view on science teaching that has distinctive characteristics. Both books would be a valuable addition to a school's professional library.

Teaching High School Science. What Research Says to the Teacher. No. 10. Barnard, J. Darrell. National Education Association. Washington, D.C. 1956. 33 pp. 25 cents.

The results of research in science education help a teacher to distinguish between effective and ineffective practices. Only infrequently is it possible to obtain a convenient summary and interpretation of this research in a form that can be easily used by the classroom teacher. It is for this reason that the NEA Department of Classroom Teachers and the American Educational Research Association have joined together to produce a series of pamphlets on "What Research Says to the Teacher."

The author has drawn from research studies on science teaching those items which promise to be of most help to classroom teachers. The material is organized to suggest possible answers to the following questions:

1. Why teach science?
2. What science should be taught?
3. What methods should be used?
4. How should the materials and facilities be used?
5. What difference does it make (evaluation)?
6. How does one become a successful science teacher?

The booklet does not attempt to present a complete summary of research in each of these areas but rather to make interpretations and offer suggestions used in research.

This pamphlet should be read by every science teacher not only to evaluate his own practices but for the stimulation it provides to do some research of his own.

TEACHING SECONDARY SCIENCE—SPECIAL AREAS

Handbook for Teaching of Conservation and Resource-Use. Weaver, Richard L. (Project leader). The Interstate Printers and Publishers, Inc. Danville, Illinois. 1955. 199 pp. $4.00.

Thousands of articles and books have been written about the need for conservation education, but here is a book that reports what hundreds of science teachers are *doing* about the problem. The *Conservation Handbook* was prepared by the National Conservation Committee of the National Association of Biology Teachers. The committees that helped to prepare the book concentrated their efforts on finding a variety of successful methods and techniques used by classroom teachers to develop concepts of conservation and resource-use. To say that the committees were successful would be an understatement.

Conservation is frequently a part of the social studies curriculum. Social studies teachers will find in this volume a wealth of important material with which they should be acquainted, particularly if conservation education is to be planned as an integral part of the total curriculum.

The handbook contains an excellent listing of free and inexpensive materials for conservation education, a bibliography of reference materials, and a selected list of films and film strips.

If you are loking for down-to-earth ideas for teaching conservation then this book is a must. We could use many more books of this type in teaching, books that describe the successful practices of other teachers in our fields of interest.

Nuclear Science and Civil Defense—Suggestions for High School Classes in Science. California State Department of Education, Division of Instruction. Sacramento. 1957. 26 pp. mimeo.

Significant Concepts in Nuclear Science—Suggestions for Junior College Classes in Chemistry, Life Sciences and Physics. California State Department of Education, Division of Instruction. Sacramento. 1957. 69 pp. mimeo.

These publications are preliminary workshop reports on the teaching of nuclear science in schools and colleges. They were prepared by the California Civil Defense Education Pilot Center of the Civil Defense Education Project, Office of Education, United States Department of Health, Education, and Welfare, in cooperation with the California Disaster Office and with the assistance of a large number of high school and junior college representatives.

The purpose of the publications is to present "suggestions for developing concepts and attitudes in nuclear science and civil defense." The authors indicate "these suggestions are not to be regarded as exhaustive of the subject or necessarily a measure of the relative emphasis to be given various parts of the subject. These curriculum materials are merely an *initial* col-

lection of ideas. Science instructors and departments should expand and test these through actual teaching practice."

In both of these pamphlets the generalizations and understandings related to nuclear science are listed and in a corresponding column illustrative techniques on presenting the concepts to students are included. The Junior College pamphlet also includes a bibliography and a listing of instructional aids.

Since we are living in an "atomic age," we need to prepare young people to understand this Age. These pamphlets provide one of the best sources of suggestions for curriculum planning in this direction.

The pamphlets were released through the Bureau of Secondary Education, California State Department of Education, Division of Instruction, at Sacramento.

Unesco Source Book for Science Teaching. UNESCO. Drukkerij Holland N.V. Amsterdam. 1956. 222 pp. $3.00. (Available in the U.S. at the United Nations Book Store, United Nations Building, New York.)

This book was first published in December 1956 and the supply was soon exhausted. A second printing was authorized in August 1957 and there is little doubt that other printings will become necessary. The reason is to be found in the hundreds of experiments which are described in the book. They are experiments that can be performed with simple, inexpensive, home-made materials, that are found almost anywhere in the world. The descriptions of the experiments are short and usually illustrated by line drawings. The author has thoughtfully classified the experiments into such groupings as fossils, astronomy, water, human body, heat, rocks, electricity, weather, and many other topics. This arrangement makes it easy to locate a series of experiments related to a particular science principle or concept.

The experienced high school science teacher looking for new ideas will not find many in this book. Teachers of general science and those with limited training in science will find this publication a gold mine of easy-to-prepare and easy-to-perform experiments.

The Science Manpower Problem

Manpower and Education. The Educational Policies Commission. National Education Association. Washington, D.C. 1956. 128 pp. $1.75.

For anyone desiring an overview of the manpower problems in the United States and their implications for teaching, *Manpower and Education* represents one of the best statements to be found. Some of the basic causes of the manpower shortage—technological discoveries, automation, and new sources of power—are carefully analyzed in terms of their implications for American life. How these developments are influencing the occupational pattern of the country is thoroughly explored in Part I of the book.

In Part II, the manpower situation is considered in relation to demo-

cratic values. "Part III traces some of the major implications in the situation for American schools and colleges; it presents the Commission's suggestions for educational policy in the light of the manpower situation."

One will find in the book a strong appeal for more emphasis upon vocational guidance in schools. A point of view is taken that all teachers have a responsibility for guidance with respect to occupational opportunities in their teaching fields. The use of *Manpower and Education* as a starting point for a series of science faculty discussions would be time well spent.

On the Target! High School Science Teaching. National Science Teachers Association. Washington, D.C. 1957. 8 pp. Free.

This pamphlet, reprinted from *The Science Teacher,* April 1957, represents the interpretation of the National Science Teachers Association (NEA) on today's science-related manpower shortage. Data were gathered from many sources to bear on such questions as high school science enrollments, the supply of qualified science teachers, and the interest of youth in science. The data are analyzed, hypotheses formulated, and programs of action suggested.

This booklet has a wealth of information in a condensed and easy-to-read form. The busy science teacher who needs a ready source of authoritative information for talks on the science manpower situation will find it here.

Improving Science Teaching

STAR Ideas in Science Teaching. Raskin, Abraham (ed.) National Science Teachers Association. Washington, D.C. 1957. 47 pp.

The Science Teacher Achievement Recognition (STAR) Program was established in 1956 to stimulate and to recognize superior science instruction in the junior and senior high schools throughout the country. Its major purposes are "to encourage the development of creative ideas, teaching materials, and teaching techniques and to secure the widest possible dissemination of such." The STAR Program is administered by the National Science Teachers Association under a grant from the National Career Institute.

STAR Ideas in Science Teaching contains a detailed description of thirteen outstanding practices for the teaching of science. From over 300 entries, these thirteen were selected by a committee as the winners. They include a variety of ideas which are classified in the booklet under the following headings: (1) teaching methods, (2) teaching aids and equipment, (3) out-of-school activities for teachers and pupils. The sponsors of the STAR Program "hope that these writings will serve as a source of inspiration, as a guide, and as a reminder to science teachers who have fresh ideas to share with their fellow teachers."

Improving Science and Mathematics Education in Elementary and Secondary Schools. The National Committee for the Development of Scientists and Engineers. Washington, D.C. 1957. pp. un-numbered. Free.

This is a report of one of the many committees interested in improving science and mathematics teaching. The major concern of the committee is to find ways of motivating a larger fraction of the school population to seek careers in the scientific and engineering fields. The committee defines the problems faced in providing sufficient trained manpower for a technological age and then relates these problems to our present educational system. Improved science and mathematics teaching is seen as a possible solution to the scientific manpower shortage. The committee recognizes that the situation is not one that can be solved entirely in the classroom. The report contains lists of specific responsibilities and procedures for working on the problem. There are suggestions useful to teachers, the local school system, school boards, state departments of education, federal agencies, professional organizations, industry and labor, colleges and universities, and citizen groups. The many recommendations made are presented as guide lines to action and not as detailed procedures.

The Rapid Learner in Science

Encouraging Science Talent. Cole, Charles C., Jr. College Entrance Examination Board. Los Angeles. 1956. ix + 259 pp. $3.50.

This book is the most complete report published to date on the talented student in science. The characteristics of science and scientists are analyzed and serve as an introduction to the volume. The nature of scientific ability and how it may be identified is thoroughly explored and carefully documented.

The author studies the reasons for the loss of high-level ability students from high school to college and seeks to discover ways used to encourage them to continue their education. Science teachers will find a wealth of suggestions for encouraging young people to enter careers in science.

The book contains a selected and classified bibliography of about 600 references on science education. Those planning programs for the gifted student in science will find this volume presents one of the soundest and certainly the most comprehensive treatments of the problem which can be obtained.

Providing for Outstanding Science and Mathematics Students. Gordon, Garford G. Southern California Education Monographs. No. 16. University of Southern California Press. Los Angeles. 1955. xv + 111 pp. $4.50.

This book is a research study on methods used in high schools to meet the special needs of the rapid learners in science and mathematics. Data for the study were collected in nearly 150 high schools.

Some effort to provide for the gifted student in science and mathematics through special educational programs was found to occur in most schools. However, only a comparatively few schools provided the teacher with time to carry out the programs. Many of the activities planned for outstanding

students were found to be more time-consuming than educational. Significant departures from regular class procedures was found in only about half of the schools studied.

Science teachers were more likely to develop specific activities for the rapid learner than were mathematics teachers.

Those interested in establishing programs for outstanding students in science and mathematics will find many positive suggestions in this volume. The author also points out some of the factors which limit programs of this type. Those interested in comparing general practice with local efforts will find this book a valuable reference.

Research Résumé. No. 5. 1956 Addition to Annotated Bibliography on Education of Gifted Children. Gowan, J. C. California Teachers Association. San Francisco. 1957. 43 pp. $1.00.

Over 200 references are listed and annotated on the gifted student. Ten percent of the articles in the bibliography refer specifically to rapid learners in science. The majority of the ideas to be found in the remaining references are also applicable to science teaching.

Teaching Problem-Solving

Science Teaching Through Problem Solving. Evans, Hubert M. (ed.) National Science Teachers Association, Washington, D.C. 1956. iv + 79 pp. $2.00.

Problem solving is the most frequently mentioned objective of science teaching. It is also the least understood and the most difficult objective to achieve. In an effort to explore the problem-solving objective from many aspects, the Fourth National Convention of the NSTA in March 1956 was organized around the theme "Problem Solving, How We Learn."

The report is divided into three sections:

1. Problem Solving: What is It?
2. Problem Solving Ability: How Can it Be Acquired?
3. Effectiveness of Problem Solving Education: How Can it Be Evaluated?

The usual difficulties encountered in an attempt to summarize an entire convention are evident in the publication; the papers presented and the discussion they provoked are not always complete. The report does, however, give a cross section of some of the thinking about problem solving and should provide a good starting point for science faculty meetings on the teaching of problem solving.

Science Reasoning and Understanding. Dressel, Paul L. and Mayhew, Lewis B. Wm. C. Brown Co., Inc. Dubuque, Iowa. 1954. vii + 221 pp. $3.50.

The purpose of this book is to show in some detail how certain of the abilities involved in science reasoning and understanding can be developed through the use of standard text materials and current periodical literature. The five abilities for which the authors have developed illustrative teaching procedures are "the ability to

1. recognize and state *problems*
2. select, evaluate, and apply *information* to problems
3. recognize, state, and test *hypotheses*
4. recognize and evaluate *conclusions, assumptions,* and *generalizations*
5. formulate attitudes and take action after critical consideration."

The authors illustrate specifically how a number of carefully selected articles can be used to teach problem-solving skills and attitudes. Criteria for the development of evaluative instruments for particular skills and attitudes are given. Sample tests and a guide for the construction of test items make the book a valuable reference.

This book was an outgrowth of the activities of the Committee on Evaluation of Science Objectives of the Cooperative Study of Evaluation in General Education. Seventeen colleges with programs in general education in science were represented in this three year study of evaluation.

While the materials in this publication were developed for junior colleges and lower division science classes of colleges and universities, the ideas are equally applicable to high school teaching. Any teacher who accepts the point of view that "critical thinking" is an important objective of science teaching will find this book indispensable. Junior college and university teachers will appreciate the comprehensive annotated bibliography on general education in science included in the book.

Career Guidance in Science

Encouraging Future Scientists. The Future Scientists of America Foundation. National Science Teachers Association. Washington, D.C. 1956. 35 pp. Free.

The fourth edition of this directory was compiled primarily for teachers of science to aid them in counseling students interested in a career in science. The pamphlet contains lists of publications describing careers in science, a list of career guidance films, sources of scholarship data, summer programs for science teachers, award programs for science students, and fellowship programs for teachers. The directory is designed to help science teachers plan a career guidance and information center within the classroom.

At the present time this is the best single source of reference material on career information covering all the fields of science and also teacher-aid programs sponsored by industry, university, scientific societies and other groups.

Career Opportunities in Biology. Stevens, Russell B. Row, Peterson and Company. Evanston, Illinois. 1956. 63 pp. 90 cents.

This booklet was prepared as a guide for high school students who may be considering a career in one of the biological sciences, to help him "chart his course with open eyes." *Career Opportunities in Biology* was an undertaking of the Division of Biology and Agriculture, National Academy of Sciences—National Research Council, "in response to repeated requests for information and guidance received from biologists and biological societies. It was prepared under the sponsorship of the Committee on Education Policies of the Biology Council."

The booklet is intended to help the student to assess his qualifications for a biological career, to point out the opportunities, to highlight the rewards, and to answer questions about the kinds of education needed. An extensive annotated bibliography is included in the booklet describing additional sources of career information, biological societies, and sources of scholarship information.

Guide to Information on Scholarships for High School Students. The President's Committee on Scientists and Engineers. Washington 25, D.C. 1957. Pages un-numbered. Free.

Many efforts have been directed toward discovering students of superior ability who are interested in science and engineering careers and to encourage them to continue their education beyond high school. They should not be denied this opportunity by their lack of financial resources. This pamphlet, developed by the President's Committee on Scientists and Engineers, was planned to acquaint teachers with scholarships available to high school students. The guide is not a listing of individual scholarships, but a reference to the major sources of information.

Evaluation in Science

Folio of Questions and Problems in Science. Dressel, Paul L. and Nelson, Clarence H. Educational Testing Service. Princeton. 1956. 798 pp. $27.50.

The *Folio* of test items contains over 13,000 questions selected from the contributions of many college science instructors and classified under thirty different subject headings. Although these questions are intended for college science courses, high school teachers will find thousands of items applicable to their classes. Most of the test items can be used in science courses commonly taught in junior colleges.

The *Folio* was developed to help teachers prepare classroom tests, in terms of the objectives of their particular courses, with questions that have been carefully edited for proper construction and clarity. Science teachers will find the publication not only a time-saver but also a valuable guide for the improvement of their own tests.

A copy of this loose-leaf *Folio* deserves a place in the professional library of every high school and college science department.

The Science Teacher

Summer Employment of High School Science Teachers. Future Scientists of America Foundation of the National Science Teachers Association. Washington, D.C. 1957. 31 pp. Free.

This booklet presents a summary of the practices of ninety-two companies in the employment of science teachers during the summer. The report shows that more teachers each year are taking advantage of these programs and also that the number of companies offering such employment is on the increase.

Employment of teachers in summer work commensurate with their educational background is one way of providing additional science training. In particular, it develops a background of experience valuable in the vocational counseling of students. These industrial programs not only give the teacher a different kind of educational training, but do so while paying him a salary.

The booklet is more informative about practices in industry than about teacher opportunities. Science teachers may wish to obtain copies of the report to distribute to industrial leaders in their school community, particularly if there is a possibility of stimulating a program of summer employment.

Science Fairs

A Manual for Science Fairs. American Museum of Atomic Energy. Education Section. Oak Ridge, Tenn. Undated. 20 pp.

Science Fair Handbook—For Teachers. American Museum of Atomic Energy. Education Section. Oak Ridge, Tenn. Undated. 17 pp.

Science Fair Handbook—For Exhibitors. American Museum of Atomic Energy. Education Section. Oak Ridge, Tenn. Undated. 8 pp.

Science fairs continue to grow in popularity. Their value in stimulating student interest in science seems evident. The encouragement, provided by the fairs, for students to develop their own ideas and to carry out a "research" project represents the best kind of teaching.

Many articles on science fairs can be found scattered throughout the periodical literature; these three pamphlets developed at the American Museum of Atomic Energy bring much of this information together in a convenient form. The title of each pamphlet broadly indicates the nature of its content.

In the *Manual for Science Fairs,* the background and objectives are discussed, rules and regulations given, and suggestions made for judging entries. A bibliography includes references on the motivation and guidance of students, science fairs in general, and science fair aids.

The *Science Fair Handbook—For Teachers* contains fifty guiding prin-

ciples for developing exhibits. Most of the booklet, however, consists of a listing of science fair projects that "have been considered excellent in previous Science Fairs."

The *Science Fair Handbook—For Exhibitors* was prepared to serve as "a guide for local, district, regional and state science fair officials in preparing manuals to be distributed to students . . ." The pamphlet includes lists of the basic rules, safety precautions, standards of judging, and exhibit hits.

The Science Library

Books of the Traveling High School Science Library. Deason, Hilary J. American Association for the Advancement of Science. Washington, D.C. 1956. 69 pp. 25 cents.

One criterion of a good secondary school science program is the opportunity provided for students to read widely. This becomes a problem in small schools with a limited budget and where public library facilities are poor or absent. To help meet this problem the AAAS, with the cooperation of the National Science Foundation, has prepared a list of 200 science books suitable for high school students. These books have been organized into library units of fifty for distribution to schools "with a total enrollment of neither less than 150 nor more than 750 students in the 10th to 12th grades inclusive."

The books in the library were selected through the cooperative efforts of scientists, librarians, and science teachers. High school students assisted in the final selection. Teachers will find the book list a valuable guide for the acquisition of new science and mathematics publications for high school and community libraries. In 1958 a new selection of books will be made. This list will be lengthened to include books for junior high schools, senior high schools, and for non-specialized adult readers.

If your school is eligible and desires to receive the library, a formal application should be filed with the AAAS by your high school principal. Requests from teachers are not accepted. Further information may be obtained from Dr. Hilary J. Deason, AAAS, 1515 Massachusetts Avenue, N.W., Washington 5, D.C.

The Social Implications of Science

Science and the Social Studies. Cummings, Howard H. (ed.) National Council for the Social Studies. Washington, D.C. 1957. x + 271 pp. $4.00.

Science has become a major determinant of our culture. The economic, social, and political questions of our times have their answers deeply rooted in science and technology. The accelerated growth of scientific activity has led to considerable disparity between the social studies and the sciences —a result that may impair human welfare and progress. It is becoming

increasingly evident that science and the social studies must cross at certain points in the education process.

The Yearbook of the National Council for the Social Studies explores the role of science and technology in modifying society. Chapters were written by scientists, by teachers of the social studies, and by specialists in the teaching of these subjects. Each author expresses his own point of view in a separate chapter. The volume is therefore rather loosely organized with only the theme "science and social studies" to provide continuity.

A careful reading of the book reveals much of the current thinking about the place of science in society. The need for emphasis on the teaching of this relationship is pointed out, objectives are suggested, and some of the problem areas defined.

One of the most important statements in the publication is found in the appendix. This is the Preliminary Report of the American Association for the Advancement of Science Interim Committee on the *Social Aspects of Science,* first reported in the January 25, 1957, issue of *Science.* Here a committee representing the world's largest organization of scientists gives an interpretation of the relation between science and social problems. The reviewer feels that the implications for secondary science teaching in this report mark the beginning of a new era.

NATIONAL SCIENCE TEACHERS ASSOCIATION CONVENTION

The 1958 National Convention of the National Science Teachers Association will be held March 26, 27, 28, and 29 in Denver, Colorado.

TEACHING TO WRITE

Writing is not taught merely by considering the subject-predicate nature of modern English, the rules for punctuation, the parts of speech, etc., according to Lou LaBrant in "Writing Is More Than Structure," in the *English Journal* for May, 1957. She is concerned with the "full experience of translating ideas into the written word." Transferring an idea to the speech organs is almost instantaneous; translating it to hand, to nerve and muscle, is slower and less easily modified. Writing, Miss LaBrant believes, is usually in terms of both time and space. In purposive writing, moreover, there is both the "unavoidable audience" for whom we project an image, and the personal involvement of the writer. And finally, there is an inherent quality in writing: responsibility for what is said. Writing is not taught by the logic of language structure nor through a formal outline. Writing remains, in Miss LaBrant's view, "the most difficult of the language arts." She concludes: "Writing is not too difficult to be achieved, but the components call for direct, full experience rather than for mere learning about the process."

—*The News Letter,* October 1957

What's Happening in California Secondary Schools

By WILLIAM N. McGOWAN*

Because of current interest in problems relating to the physical education requirement in California secondary schools, this space is being devoted to a presentation prepared in collaboration with Harold E. Perry, principal at Hollywood High School in Los Angeles. Mr. Perry is chairman of a California Education Coordinating Committee subcommittee charged with the responsibility of studying problems related to the physical education requirement.

The Education Code specifies in Article 6, Section 10124, that "all pupils enrolled in the junior or senior high schools, except pupils excused, shall be required to attend upon the courses of physical education for an instructional period in each school day which shall be not less than the length of the regular academic periods of the school." This is a unique requirement. Although there are many required subjects for secondary schools under California school law, no course other than physical education is required for one full period each day during a student's entire junior and senior high school career. This is a cause for some concern to many secondary educators who feel that perhaps physical education is "too much with us." These educators feel that the time allotted at present to physical education could well be shortened, and the time gained thereby given to other subjects.

The argument is that, with the pressure of many added courses in the already full secondary school curriculum, something "has to give," and a logical place to "give" is the physical education period.

People supporting this point of view also suggest that there is considerable evidence, specific and general, that physical education hasn't fulfilled, and is not fulfilling, to the best advantage its established objectives, and that the arguments originally posed for the institution of the physical education requirement no longer pertain.

Following World War I, a great hue and cry was raised because of the number of rejections from military service based on physical disability. It was felt that public schools should do something about educating young men to better health and physical ability. A required physical education program was the proposed answer.

However, statistics from World War II, some twenty-five years later, and following the institution of the universal physical education program in California secondary schools, indicate that the record of rejections for physical disability is still serious.

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Physical education enthusiasts claim a need on the part of young people of high school age for the type of activity ostensibly afforded in the physical education class. Others will present evidence to the effect that necessary physical activity is enjoyed by young people outside of school hours, that a sufficient amount of exercise and activity is available to young people in leisure-time activities, especially in California.

California educators would be hard put to provide evidence that California young people are physically superior to young people in other parts of the country because of the secondary school physical education program.

Certain practical considerations enter the picture. As the secondary school population grows, classes already large will have to become larger, and already strained physical education facilities will become even more inadequate to meet the needs of the present type of physical education class. It is even now a common thing for at least one-third of a physical education class to go through long periods of forced inactivity due to inadequate facilities and programing, which obviates one of the primary functions of physical education.

Then, too, cost factors for the physical education program need to be analyzed. Is money that could best be spent for laboratory equipment or up-to-date materials of instruction in any one of a dozen important areas being used for the purchase of bats and balls? Playing games is a healthy experience for young people, and bats and balls are not without their place in the school curriculum. After all, education for leisure time is one of the cardinal principles of secondary education. However, it is still a question in the minds of some educators whether the ultimate goal of secondary school education in preparing youth for creative and satisfactory living experiences is being best achieved if foundation subjects are stinted to support a physical education program.

People concerned with the amount of time allotted from the school day to physical education do not disagree with the objectives stated for physical education. They do suggest, however, that these objectives are not being achieved as well as might be expected, and they also suggest that perhaps these objectives might be better fulfilled in some way other than that provided by the present physical education program.

It has been suggested that the physical education program might be strengthened in the long run by making it an elective in the twelfth grade. Another suggestion with a degree of practical value in permitting school districts to attack the problem at the local level is to remove the State physical education requirement and permit local school districts to schedule physical education according to the needs of a local situation. This possibility seems to have some merit, and would bring the physical education requirement back in line with other State requirements.

SYMPOSIUM

California's Most Required Subject: Physical Education

At any time, a subject that is specifically required by State law to be included in the curriculum is the object of interest. When it is required more than any other subject, it becomes the object of greater concern on the part of those who are responsible for the educational program of the schools. When question is raised by the highest authorities in the land as to the effectiveness of instruction in that subject, a major full-scale interest may be said to exist. This is the present status of affairs in connection with the subject of physical education, and by implications of its two counterparts, health and recreation. Because of this set of conditions the *Journal* felt that a symposium should be devoted to the field, even though it is not the general policy of the *Journal* systematically to select different subjects in the curriculum for its symposiums.

In the articles which follow, the symposium draws upon the experiences and views of a layman, an M.D., a supervisor of physical education, a State director of physical education, a superintendent of schools, a classroom teacher of physical education and of one of the academic subjects, and a student who is training to become a teacher of physical education. In addition, in the section entitled "What's Happening in California Secondary Schools" the executive secretary of the high school administrators, in collaboration with the chairman of a State-wide committee which is looking into the problem of physical education requirements, reports the current thinking of that group. The entire symposium has been coordinated by one of California's leading superintendents of schools, Dr. Norman Scharer of Santa Barbara, to whom the *Journal* readers are greatly indebted. We hope that this discussion will contribute constructively toward making health, physical education, and recreation an even stronger part of the high school curriculum.

WESTERN PERSONNEL INSTITUTE OPENS NEW DIVISION

Western Personnel Institute, an association of western colleges and universities, has announced the opening, on October 15th of a community counseling center as a new division of the Institute. The establishment of the Center, to be known as the Pasadena Counseling Center, is the result of repeated requests over the years for Western Personnel Institute to provide a resource for counseling services in that area of Southern California. The main purpose of the Pasadena Counseling Center is to assist high school and college students in decisions they must make concerning their educational objectives, and in planning for their vocational futures. Dr. Leonard Steinberg, formerly Assistant Dean of Students, Hofstra College, Hempstead, New York has been appointed manager of the newly created Center.

A Critical Look at Physical Education

By M. L. RAFFERTY, JR.*

A few California high schools teach physical education. A few m make an attempt at it.

But there is no such thing as physical education in the great majority of the State's secondary schools.

There is some excellent coaching being done in competitive athletics. There is good participation in many games and sports. There are recreational programs and play days and tournaments and group activities, all cuddled coyly under the blanket labeled "physical education."

But when all the excrescences have been scalpeled away, there is darned little physical education. . . .

I can imagine the squawks which will no doubt go up from some of the zealous and dedicated physical educationalists at the baldness of this statement. They will point with pride to their gymnasiums, many of them veritable ,leaming temples to the goddess Hygeia. They will stress the abundance of trained and experienced instructors who direct the multitudinous activities which justify the existence of these costly structures. They will extol the complex and ingenious devices such as whirlpool baths, diathermic machines, and mechanical baseball pitchers. Finally, they will ask indignantly, "Where do you get this 'no physical education' stuff?"

The trouble lies, as it so often seems to these days, in semantics. What a good many of us like to think of as physical education is really something else altogether. Let's see what Webster has to say:

"Physical education is instruction in the exercise, care, and hygiene of the human body."

Precisely. . . .

Add to this pithy definition an equally terse apothegm from one of our California State Department's publications:

"Helping adolescents to develop the ability to move effectively is the primary function of physical education in the secondary school."

In the light of these words, and bearing in mind the day-to-day activities of a typical high school "physical education" class, the only possible conclusion is that some of us are attaching entirely different meanings to the same term.

A brutally honest definition of what passes for physical education in most high schools today would go something like this:

"Take the roll. Check out a ball to a bunch of kids. Tell them to go ahead with the game. I'll referee."

Nowhere in the entire curriculum is there a wider gap than the one which exists between theory and practice in this field. Almost every public

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high school worthy of the name boasts multi-page courses of study which trace with meticulous care the several areas of experience embraced by the physical education program. Starting with "large-muscle" development in the lower grades and proceeding in good order up the ladder to the final flowering of "maximum coordination" exercise among the seniors, a wealth of theoretical material in the form of charts and manuals has been gathering the dust of decades upon the shelves of administrative offices. When hard pressed, which happens but seldom, the principal can haul out one of these impressive pamphlets, brush off the silt, and hand it with a flourish to his interrogator, implying that here is what his people are accomplishing. Actually, there may be as little resemblance between what the course outline sets forth and what his physical education teachers are in fact doing as there is between the Russian version of "peaceful coexistence" and the real McCoy.

This is too bad, because some of this theory is pretty good. There have been a lot of admirable studies made in recent years on how an adolescent can best be educated physically, and many of the ideas thus developed have filtered into school curriculums where they remain to this day, glittering modestly, like diamonds in an abandoned attic. I have myself seen magnificently-documented proposals to differentiate physical education on the basis of endomorphic, mesomorphic, and metamorphic body structures, complete with detailed plans on how to do it. This may be subject to discount on the side of practicality, but there are plenty of other more sober suggestions which have been painstakingly reduced to lesson plans and unit outlines, and which deserve a better fate than the oblivion of October Reports.

I have often wondered why such a yawning breach has developed in this great instructional field between lip service on the one hand and actual performance on the other. If English or geometry or shorthand were to be taught by dividing classes up into "teams" which competed against each other in "round robin" tournaments all year, we might rightly expect the results in terms of individual achievement to be something less than spectacular. If grades in physics or history or literature were to be given almost entirely on the basis of "participation," disaster might reasonably be anticipated in the not-too-distant future. And if degree of success in any of these subjects were to be largely determined by whether or not the students dressed properly for class each day, and showered or not upon leaving it, we should probably be justified in looking around for the nut wagon. Yet all of these things are common practice in physical education.

Before proceeding too far, let's get the hapless gym teacher off the hook, at least to a certain extent. A lot of the trouble lies with the administrator. He is the fellow who does the Horatius-at-the-bridge act to hold his academic classroom loads below thirty pupils, but makes up for it by pouring fifty or sixty kids into each gym class. This may not make the "grab the ball and let's play" routine inevitable, but it certainly helps. After all, the old Lancastrian monitorial system of the nineteenth century developed from

just such abominable overcrowding of classes, and if most of our modern physical education isn't conducted on a quasi-monitorial basis, then I've observed an awful lot of atypical gym classes.

Another example of administrative malfeasance, or perhaps "misfeasance" would be a better term, is the failure of the principal or superintendent to evaluate the results of his physical education program, or indeed to give it supervision of anything but the most cursory type. The administrator is entirely too apt to consider his work done once he has hired several more or less muscular insructors, and bought some thousands of dollars' worth of miscellaneous equipment. As he walks through the $150,000 gymnasium, hearkening to the happy shouts of the flushed youngsters and savoring the indescribable but unmistakable aroma exuded by all gyms, our administrator is all too likely to smile benevolently at the prospect of a job well done. This is about as justifiable as walking past a typing class and adjudging it a huge success on the basis of the clatter of the typewriter keys and the sight of the students bent over their machines. If the boys and girls are all busy playing, clamoring enthusiastically, and running back and forth, the gym program must be cutting the mustard. So goes the sloppy thinking of many administrators.

The gym teacher cannot escape entirely scot-free from the general indictment, however. He, or she, has consented in all too many cases to compound the felony by equating in his own mind the dual concepts of "physical education" and "organized sports." He has succumbed to the prevailing atmosphere of "let's play games" to the point where he is following the seasons like a migratory bird, seeing that "Principles of Basketball" succeeds "Principles of Football," to be followed in turn by "Principles of Track," and so on and on, in every class through every year, like a broken record.

Nomenclature is partly to blame for this situation; the physical education instructor is usually referred to as a "coach," which he certainly is not unless he is working directly with an organized competitive team. Too often, of course, he is doing this very thing, not only after school as a properly extracurricular activity, but all day as well, bringing the highly specialized methods of the coach improperly to bear upon unspecialized and heterogeneous masses of non-athletes. This works about as well as could be expected, that is to say about as effectively as a brain surgeon called in to treat a bellyache.

What seems to be needed is a four-point program designed to bring physical education out of its present equivocal status as a sort of "free period" play time. Inasmuch as most of us can agree that its main goal should be the continuing improvement of the child's muscular development, coordination, and general health over a set period of years, we should also be able to settle upon the following principles of a good physical education program:

1. The theory should be either implemented or discarded. A course of study is good only insofar as it is used. If it calls for handball at a

certain time during a given year, then handball courts had better be available, along with trained instructors. If calisthenics are scheduled somewhere along the line, they should be taught efficiently and constructively, not used as a disciplinary device to punish recalcitrants. A skill area should never be left in the written curriculum as padding, or because someone thinks it looks good there. Teach it, or take it out.

2. Repetition should be used only to insure adequate mastery. Letting a boy play softball every spring just because it happens to be softball season is indefensible. Once he has gained a reasonable proficiency in any area, let him be led into something else, whether it be horseshoe pitching, shuffleboard, or bowling on the green. The only criteria should be its desirability from the standpoint of individual need, and the sequential position of the subject in the course outline.

3. Let us not confuse physical education with sports. The latter is but a minority segment of the former. Proper individual exercise, dietetics, hygiene, and care of the body are collectively far more important to the average adolescent's future than the whole galaxy of competitive sports.

4. Continuous supervision and evaluation of the whole program are essential, if the relative importance of the several areas is to be kept in balance.

Physical education is the subject which this State requires to be taught to more boys and girls over a longer period of time than any other. It is expensive, in terms both of money and effort. It should long ago have produced results in terms of our young people's strength, agility, and general fitness commensurate with its universality and its cost. The blunt truth is that it has not.

Anyone who has read Selective Service rejection figures or who has perused the report recently made to the President of the United States on this topic knows that our youth is becoming progressively less fit. While this decline may have its roots in causes outside the schools, it is nonetheless subject to diagnosis and treatment within the schools. We had better begin to administer the cure, or turn our money and facilities over to organized recreation, which is a horse of quite a different hue.

When physical education ceases to be thought of by teachers and pupils as "play," when its daily activities are planned as carefully as are those in the fields of mathematics and foreign language, and when its results are subjected to systematic measurement at regular intervals, then and only then will this great and ancient branch of instruction, dating as it does back to the Periclean Greeks, assume in our own time the status to which it is justly entitled.

California's Fitness is Showing

By C. CARSON CONRAD*

While attending a State conference of school administrators in Southern California recently, a superintendent of one of the large high school districts expressed his concern for youth fitness and proudly related improvements made in physical education in his district:

> "We've cut our classes down to teachable size, and facilities improvements have provided needed teaching stations. More emphasis is given to those sports having a high recreational carry-over value, but we haven't sacrificed conditioning in doing so. Gymnastics, tumbling, and aquatics have been added for all boys and girls, and wrestling and cross country are now part of our interscholastic sports. Motor fitness and skill tests play an important role, and, believe it or not, we finally developed intramural sports for our boys.
>
> "Our course of study is dog-eared from heavy use, and the results are evident in the gym, pool, and play fields. We're doing an instructional job in physical education now, and it's paying off all around. Fitness! You bet we have fitness. Come in and take a look at what we're doing. If there is a better program, I'll have to see it to believe it," he firmly challenged.

Perhaps this superintendent's enthusiastic statement will serve to illustrate the interest of school administrators in improved programs of fitness. A number of similar comments were expressed at the Southern California conference and other meetings the past fall.

Interest in fitness is not one peculiar to school administrators or to California. In no peace-time period has there been more evidence of real concern for the fitness of youth. Several years ago President Eisenhower was shocked to learn through results of the now widely-known Kraus-Prudden study that children from the New England section of the United States were 49.2 per cent weaker than European children in a test of minimum muscular fitness.

At a White House luncheon in July 1955 it appeared to be the consensus that American youth were getting soft and flabby. Muscle-building chores have almost disappeared from the picture in most homes, and the great out-of-doors is fast becoming part of the asphalt jungle. Children rarely do much walking. There's always a car or a school bus available, and traffic often makes walking dangerous. Today's youth have much leisure time, but much of that is being used sitting in the automobile, in front of TV, at the movies, or in the bleachers. After considering the facts,

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the President believed that positive action would have to be taken to re-establish and sustain the vigor of our youth.

Vice-President Richard Nixon, in his opening address at "The President's Conference on Fitness of American Youth," which was held at Annapolis in June 1956, underlined the problem of fitness as follows:

> "We are not a nation of softies, but we could become one if popular attention is not given to the trend of our time, which is toward the invention of all sorts of gadgetry to make life easy, and in so doing to reduce the opportunity for normal physical, health-giving exercise.
>
> "The objective of an adequate physical fitness program can be summed up in one word, participation—participation on the part of every boy and girl in America in some form of healthy recreational and physical activity.
>
> "The super-athlete is not our primary concern. . . . It is the boy or girl with ordinary physical abilities who should receive the major share of our attention. Neither is our primary concern the development of physical fitness in itself. Everyone agrees that the person who has physical fitness enjoys a healthy mental outlook and a general feeling of bodily well-being. Physical activity relieves emotional strain under which we live, and relieves the pressure of our highly productive lives. All studies on this problem indicate that an obvious by-product of an adequate physical education and recreational program for American youth will be a reduction in the rate of juvenile delinquency."

A result of the Annapolis conference was a Presidential Executive Order which established the President's Council on Youth Fitness (composed of Cabinet members) and the President's Citizens' Advisory Committee. Dr. Shane MacCarthy was appointed Executive Director for the Council, and Carter Burgess, President of TWA, was named Chairman of the Advisory Committee. Today, through the Council and Citizens' Committee, we have the machinery at the highest level of government for concentrated emphasis on improving the fitness of American Youth.

On the California scene there have been similar developments.

California Project on Fitness

In November 1955, at the request of Dr. Jay D. Conner, Chief of the Division of Instruction and Associate Superintendent of Public Instruction, California State Department of Education, representatives of fifteen professional and allied associations, and three State agencies met in a two-day conference in Sacramento. Purpose was to consider the advisability of mobilizing forces to improve the fitness of our people.

As a result of the Sacramento meeting the State Department of Education, under the leadership of the Bureau of Health Education, Physical Education, and Recreation, embarked upon the California Project on Fitness, and a representative State-wide committee was appointed consisting of physicians, physiologists, college and university personnel, teachers,

school administrators and supervisors, coaches, parents, school board members, health and recreation leaders, and psychologists. Project leaders seek to improve the fitness of Californians through effective programs of health education, physical education, and recreation under competent leadership. Fitness refers to the condition of one who is mentally, physically, emotionally, and socially fit to adapt himself to the demands of everyday living.

The California Committee on Fitness has worked through the eighteen organizations participating in the project, and after years of "exploration" and "organization" has moved into the "year of action" and implementation.

In a nation-wide report on physical fitness by Dorothy Stull, in *Sports Illustrated,* August 5, 1957, California was praised for its accomplishments in this way:

> "Only one state—California—has made a major advance in its fitness program. Others have held meetings, formed committees, and provided local guidance, but California is the only state that can serve as a model for other states and for the Council [President Eisenhower's Council on Youth Fitness].
>
> "California's record is so impressive that for the last two months inquiries about the organization and the development of the California Project have been received from all over the United States."

At this point you, the reader, undoubtedly are thinking: "So you have a mission and have organized a committee! So you got a commendation! So what?"

Following are listed a small number of significant accomplishments that are believed to be at least partly due to the State project:

1. *Study by Professional Committees*—Eight action committees are reaching the "pay-off" stage after several years of concentrated study. Evaluative criteria for curricula, facilities, and personnel in health education, physical condition, and recreation will soon be available. Research needs and priorities, administrative problems, and professional and public relations are under study. One of these committees reached the action stage last fall, namely, the measurement group for which Dr. Anna Espenschade, University of California, Berkeley, serves as chairman. Dr. Espenschade is a member of President Eisenhower's Citizens' Advisory Committee and for many years has been one of the outstanding persons in the nation in measurement. Her measurement committee developed and recommended that "The California Physical Performance Test" be used in conducting a State-wide cooperative test project. Data secured through this activity would be used to: (1) compare test results with those given in the 1930's in California; (2) establish norms for students now enrolled; (3) contribute to the establishment of national norms, and (4) assist teachers in planning and conducting physical education which is based upon student needs as revealed by the performance test.

2. *California Cooperative Test Project*—The recommendation of the measurement committee, referred to above, was accepted and today hundreds of schools are participating.

The California Physical Performance Test is composed of events selected to measure the physical or motor aspects of fitness, including strength, speed, endurance, coordination, agility, and flexibility.

Dr. Espenschade, in presenting her committee's proposal, stated: "The events of the test are simple, easy to administer, require little equipment, and have established achievement norms. Research has shown repeatedly that four or five tests, usually including run, jump, throw, climb, and strength measures, will correlate highly with a much longer battery designed to measure motor fitness."

The California test is for boys and girls, grades 5 through 12. The complete test battery includes twelve events in five groups, with one event to be selected from each of the five groups. This is mentioned as seven of the twelve California events were selected for use in a nation-wide inventory and appraisal of certain aspects of physical fitness of American youth which is currently under way through the Research Council, American Association for Health, Physical Education, and Recreation.

Because of earlier normative studies, California has the unique opportunity to compare physical performances of pupils today with those of twenty-five years ago. It is emphasized that these are not the Kraus-Weber tests of back and abdominal strengths and flexibility. These are tests of those motor performances in which California girls and boys participate daily in physical education—running, jumping, throwing, and climbing.

During this school year districts are encouraged to conduct tests for their own use. Results of tests during the spring, 1958 and fall, 1958 are needed for the State project.

Pilot studies are under way in Sonoma, San Diego, Sacramento, and Fresno Counties. Last year Berkeley experimented with the test, and tested over twelve hundred fourth-grade boys and girls. In Sonoma County, under the leadership of the County Superintendent of Schools, 92 per cent of the schools are participating. Curriculum, health and physical education coordinators, school nurses, and P.T.A. representatives are working with teachers and school administrators to conduct the test effectively.

3. *Fairs and Fitness*—Western Fairs Association's leaders are planning "all-out" support for youth fitness in 1958. The WFA serves over 7 million people through its seventy-three fairs, so look for a major emphasis through this avenue of public service.

4. *Athletics and Fitness*—The California Interscholastic Federation recently commissioned a "Committee on Youth Fitness" to study how scholastic athletics could best contribute to individual fitness. In

January 1957 the CIF distributed a report and recommendations on "Conditioning Athletes for High School Football."

5. *State-wide Study of Physical Education*—A study of physical education in California's public high schools is being conducted by a State committee upon which are representatives of seven professional associations and the State Department of Education. The purpose of the study is to determine the scope of the required instruction phase of physical education and the extent to which the objectives of physical education, as stated in the California Education Code, were accomplished within the program during the 1957 school year.

6. *State Concern for Fitness*—At the invitation of Governor Goodwin J. Knight, directors of five state departments met with Dr. Shane MacCarthy to discuss the President's youth fitness proposals and implications for California. Dr. Roy E. Simpson was chairman of this meeting.

Youth fitness is one of the major problems which will be considered at the *Governor's Conference on Youth* which will be held in Sacramento on February 11–12, 1958.

7. *Junior Colleges and Fitness*—A two-year study of health education, physical education, and recreation in California junior colleges, which devoted much attention to individual fitness, has just been completed. Through the study, involving hundreds of junior college leaders, agreements were secured on needed minimum standards.

8. *Fitness Emphasis Through Conferences*—A number of local, regional, and State conferences and workshops have used a fitness theme. The 1957 conference of the California Association of School Administrators had a curriculum clinic on physical fitness. During last October the San Francisco City Schools for three weeks conducted a teachers' workshop on physical fitness.

9. *Fitness and What We've Done About It* — Countless reports have been voluntarily submitted indicating program improvements and good practices. Space will permit listing only several of these.

Fresno—James Bradshaw, Director of Physical Education, Fresno Public Schools, compared the "West Point Standard for Boys" published in the Dorothy Stull article "The Point of Fitness," in *Sports Illustrated* of September 9, with average performances of all seventh, ninth, and twelfth grade boys in the Fresno schools on pull-ups, sit-ups, and the 300-yard run. Results were that the average Fresno mark for twelfth grades exceeded the West Point "excellent" figure in all tests; the Fresno average for sixth and ninth grades exceeded West Point "excellent" in all except pull-up. Thus, the average performance of all Fresno boys was higher than the West Point "excellent" figure on seven of the nine events.

San Anselmo—Bob Fitzhenry, Chairman, Boys' Physical Education, Sir Francis Drake High School, wrote: "Our program has been completely revised, and we feel it is the most functional physical edu-

cation program we have ever seen on the high school level. There is definite progression from the basic fundamentals in the freshman year to advanced work in the junior-senior years. Swimming, gymnastics and tumbling, baseball, football, basketball, track, wrestling, volleyball, and conditioning activities comprise our program. We have an evaluation or testing period at the end of each block. We have found the students are thoroughly enjoying the instruction and organization of physical education. Our staff felt that our program should be upgraded. This was our challenge, and we feel we have found our answer."

Such reports make us feel that the fitness emphasis is being felt where it must be—on the school and community level. In the final analysis, the national and State recognition and actions are important, but only as they help the teacher, recreation leader, school nurse, and others who work in face-to-face leadership to do the job.

TECHNICIANS FOR EARTH AND MOONS

—Shortage of technological workers grave

Russia's Sputnik I, whirling around the globe, may well serve as an hourly reminder that the United States needs not only more scientists and engineers but also technicians.

The shortage of technicians is critical—we need them by the thousands.

The U.S. Office of Education has within recent weeks (long before the Soviet's victory in celestial space) begun a concentrated move to find and train these much-needed adjutants to science and technology.

A national policy conference on technician education was held in Washington in May. Through the rest of 1957 and 1958, state and regional conferences will seek to spur vocational schools, community colleges, and industrial in-service courses to give greater attention to technological training.

What is a technician?

He is a middleman, with why-power and know-how. His why-power is grounded on the engineer's math and physics. His know-how is based on the journeyman's skills. He is part of a three-man team—engineer, craftsman, technician. He works with precise instruments and with skilled, semiskilled or one-skilled employees.

He may do any one of a hundred different jobs—draftsman, estimator, produciton programmer, technical writer, designer, tool shop specialist, or instrument serviceman. He uses the laboratory more than the shop; he uses testing and experimental machinery more than hand or power tools.

He must be trained in schools

But above all he needs education and training. Math and science are his staples; but he also needs the arts of communication, personnel supervision, and the ability to solve problems.

Where is the future technician to be educated and trained? In several types of school organizations, among them—state-operated schools having 13th and 14th years; post-high school area schools; public vocational schools; community colleges; adult education courses; extension services; on-the-job training facilities set up by industry and schoolmen; and technical institutes.

Finding potential candidates for technician education is not easy. However, vocational educators believe that the necessary supplies of people can be found from among the high school population; from young people already employed; and from older workers who have left their jobs because of technological displacement.

Does Physical Education Contribute to Family Life Education?

By MRS. WYMAN T. HARDER*

(The opinions expressed in this article are those of the writer and do not necessarily reflect the attitude of the California Congress of Parents and Teachers.)

The primary objectives of the physical education program of the California secondary schools of today seem to be physical fitness and provision of opportunities for wholesome recreational activities for all students. Both are aimed at making the individual student an integrated, contributing member of society. How well these objectives are achieved appears to be dependent on the attitudes and skills of individual physical education instructors, and the guidance and support provided by local school systems and the State Department of Education. It is evident, as in all education, that improvement of the existing program is a constant upward struggle. It is also evident that there is a shift in emphasis from time to time to conform with particular alarms or interests of the nation.

These factors make a carryover of physical fitness development and recreational interest into adult life a concomitant but secondary matter. Achievement of this carryover could become primary if sufficient demand were made. This article should not be construed as such a demand, but simply as a commentary.

When we take the long view of physical education as related to family life, two questions become paramount:

1. How does physical education help to develop the adequacy of the individual so that he may become an adequate family member?

2. How can the learnings from a secondary physical education program be carried over into family living?

In recent years we have heard more and more of the necessity for integration of the mental, moral, and physical in order to develop a mature adult. This puts a large responsibility on the one department in the secondary schools which is primarily concerned with physical development. Emphasis on helping each individual to attain his highest level is increasingly demanded of all education. Physical education has even greater handicaps in attainment of individual growth than do the academic fields. Along with shortage of teachers, leading to undesirable teaching loads, we have the heavy expense entailed in providing adequate physical facilities for a good physical education program. If we are to have genuine development of the individual, finding and cultivating his special recreational in-

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terests to the extent that they will become meaningful in adult life, we will either have to provide more facilities or reorganize the present program to fit the facilities now available. Whether a better job for the individual could be done with smaller classes meeting less frequently is a moot point.

With classes of fifty–eighty or more youngsters, team games are possible, but that is about all that is possible. Whether this team play is truly constructive depends upon the teacher. It may be valuable or it may be simply whistle plays that take the mass production line from the beginning to the end of the period. Certainly group activities can and should teach the value of cooperation, self-subordination and obedience to authority. They provide a social interchange which is needed at all ages. They play their part in developing coordination and skills which may be used in adult life. They lay a foundation for participation in games at the local Y or community playground. They may provide a necessary outlet for the frustrations met in everyday living. But how often can adults find the necessary number of players for these games unless they are a scheduled part of some recreational program? Such games are good, but not readily usable in adult life.

This present mass approach provides quite well for those children of high average or superior physical abilities. The physical educationists can never be accused of neglecting the gifted child! Those students who excel are the team stars, and the high average are the team. Intramural sports at noon or after school may bring out the average, or even some of the inept, but the inept cannot feel too welcome, and it takes a superior type of persistence for them to stick it out for any appreciable period of time.

The activities of most value in adult life are those physical skills which can be practiced alone, with one or two others, or with a family as a whole. Deep down in each of us seems to be a real desire to excel in some physical activity. What father does not look back at his adolescent years through rose-colored glasses, fully convinced that even if he was not a football hero he was a mighty fast runner, a powerful wrestler, or a real whiz at push-ups? Mother too feels that she might not have been a ballet dancer of note, but she probably could have been quite fetching in this modern dance, a fairly good swimmer, and no slouch at Ping-pong if she had just started a little earlier. There probably are very few adults who do not think rather wistfully that had there been more opportunity they too might have excelled in some sport. They may actually belong in the same category as Major Hoople, but certainly they do not bring to family living the attitudes and skills the physical educationists would hope for. Had they really felt competent they would have carried through in those areas of competence.

Some means of better satisfying those inward desires for competence should be found. Our group sports develop the social being. They satisfy the inward needs of some. They cannot develop the adequacy of all.

Are we overlooking the swimming lessons, the tennis, badminton, boxing, tumbling, wrestling, archery, etc., that are offered in many schools? Not at all. Each student gets a sample of everything on a regularly rotated

schedule. He may or may not have the opportunity of participating in the sport of his choice when elective time arrives. These more individual sports must necessarily be limited in their enrollment. Here may be the chance for the "eight ball," as one student called himself, to find his proper milieu. But if he is inept, does he have the chance for the teaching and encouragement which will develop a competence acceptable to himself? It does not seem possible under the present program.

When we come to the question of carrying the learnings from physical education into family life as such, the prime consideration is one of attitudes. The use of any learnings depends upon them.

We are a nation of spectators. We talk of how the world has shrunk. New York and Paris are within hours of each other, but the grocery store four blocks down is inconceivably distant if we must travel afoot. Local transport systems are constantly failing. One must walk and wait for a bus. Children of all ages are transported back and forth to school in the family car, and loud are the plaints if Johnny must walk a few blocks to catch the school bus. Bicycles go from the coveted to the accepted to the scorned mode of transportation at an earlier and earlier age. We read that only 42.1 per cent of our 6–16-year-olds could pass a physical fitness test which 91.3 per cent of European children passed. Doctors write articles telling of increasing foot trouble among children because of lack of proper exercise. Mother bemoans the housework, father is short of breath and has a paunch, and both worry about the garden and urge the other to do something about it. Dr. Paul White, heart specialist, has said that we do not get too old to exercise, just too lazy. Unfortunately, that laziness seems to set in at a very early age.

Elementary children love their game period and enter into it with zest. There seems to be less enthusiasm as the years go on. Might parental attitudes exhibited all during the child's life have something to do with this? Parents too often seem to look at physical education from the competitive angle. They are very much interested if their son is a football hero, basketball star, or track champion. Otherwise they believe that physical education is something their children should have for the good of their bodies.

A specialist in physical education was telling recently of the revealing discovery he made in a tour of Europe. European adolescents like and seek physical activity. They hike, they bicycle-tour, they play games, even practice calisthenics simply because they enjoy it. Certainly our economies are different, but does this genuinely account for the difference in basic attitudes? It seems that somewhere along the line our essential values may have become confused. We accept mentally that physical and mental health must go hand in hand, but when it comes to making the necessary physical exertion, we find that this is another case of what is best for you does not suit me. How can we build a desire for and genuine realization of the need for maintenance of physical fitness? And how to develop attitudes that will bring about the necessary effort?

There are no ready answers for these questions, but some aspects of

the physical education program may offer promise. These same aspects could also make great contributions to family living. This writer does not believe in the child-centered home, but rather in the family-centered home, with necessary adjustments made for the needs and desires of all family members, including parents. So let's have some activities suited to the entire family and others which will be carried on with similar age levels. Coeducational physical education and outdoor education offer opportunities for both.

Development of superior team skills does not fit into the coeducational program, but certainly enjoyment of wholesome recreational activities does. Physical education departments have a strong tendency to be isolated from the academic departments. Segregation of boys and girls within the department makes for further isolation. Why not capitalize on the normal interest that boys and girls have in each other? This does not mean there should be no separation. It does mean there should be more emphasis on integration than on scheduling the use of field or pool. There can be competition in many of the sports. Never girls versus boys—we need to minimize, not encourage, competition in married life! Mixed teams can compete in swimming, volleyball, badminton, archery, tennis—in any games which do not involve force. Such practice should encourage dating couples to enjoy other activities than joyriding, movies, and parking. It would give married couples a basis on which to engage in dual activities with respect for each other's prowess and limitations.

Outdoor education offers wonderful opportunities for some of the experiences which can provide satisfying enrichment all through life. How often do we as urban parents regret that our children cannot have some of the soul-satisfying experiences which come from intimate contact with nature. If we were fortunate enough to have them as children, we cherish the memories. If we lacked these experiences, it sometimes takes most of our mature years to come to the realization and understanding of the great peace of soul and release of tensions such natural contacts can bring. Too often we never experience it. To the urban child, the woods, the water, the mountains, the unmechanized environment is a frightening and awesome experience. If he can learn how to live in it, to feel secure in it, he will seek it. If he enjoys it, he will want to share this pleasure with his family. Something very stable will have been built into his life and the life of his family.

Physical fitness for our adolescent youth is necessary. Compulsory means of development stop with schooling. If the desire for fitness and the necessary activity to achieve it are to be carried over into the mature years, we must establish the attitudes which will make this possible. The foundation of our society is the family. Families enjoy doing together those things in which they have at least nominal competence and a basis of mutual understanding. When pleasure from such common interests is habitually sought, we have much less to fear from our increasingly mechanized world with its constantly added leisure. It is a challenge to physical education to add its cement to the family solidarity of the future.

Athletics—A Part of Physical Education?

By GORDON MANNERSTEDT* and
THEODORE W. FORBES†

Can athletics be considered as a part of physical education? For the purpose of promoting suspense, and inveigling the reader into continuing to read to the bitter end, the answer should perhaps be deferred until the end of the article. However, we propose to give the answer at the beginning so that the reader who is interested in nothing else may skip the rest.

Athletics are, and should be, an integral part of physical education. For athletics certainly are "physical" in that the body is involved—also "educational" in that aptitudes and skills have to be developed and improved in order to achieve proficiency.

Where does the concept of "proficiency" lead? Proficiency is a matter of degree. It does not imply the ability to shatter world records. Such a degree of achievement is, and should be, only an occasional and incidental offshoot of participation in physical education and athletics. The purpose of physical education and athletics is to contribute to fitness and the fullest possible enjoyment of life, not only for a few world champions, but for everyone. Have you ever been to a baseball or football game? If so, there you saw eighteen or twenty-two men getting exercise which they didn't really need, while thousands, most of whom probably needed the exercise, *sat* and watched!

In the interest of promoting more universal participation in physical activity, such as the various athletic sports, it is necessary for all individuals to be exposed to personal participation in the sport and to develop a degree of proficiency which will produce a feeling of satisfaction from participation. The time to implant these basic interests is during the formative years. This is one goal of physical education and athletics in schools.

Chart I[1] illustrates the interrelationships of various phases of physical education, and, even more important, shows that physical education and athletics are for *all students*. In reference to the chart, note that *all students* includes those *with* as well as *without* handicapping defects. Physical education has something to offer to *every* student, regardless of his limitations. Every student should be involved in a comprehensive program of physical education.

Physical education contributes basic body development and basic skills and coordination. The various forms of athletics, by participation, develop

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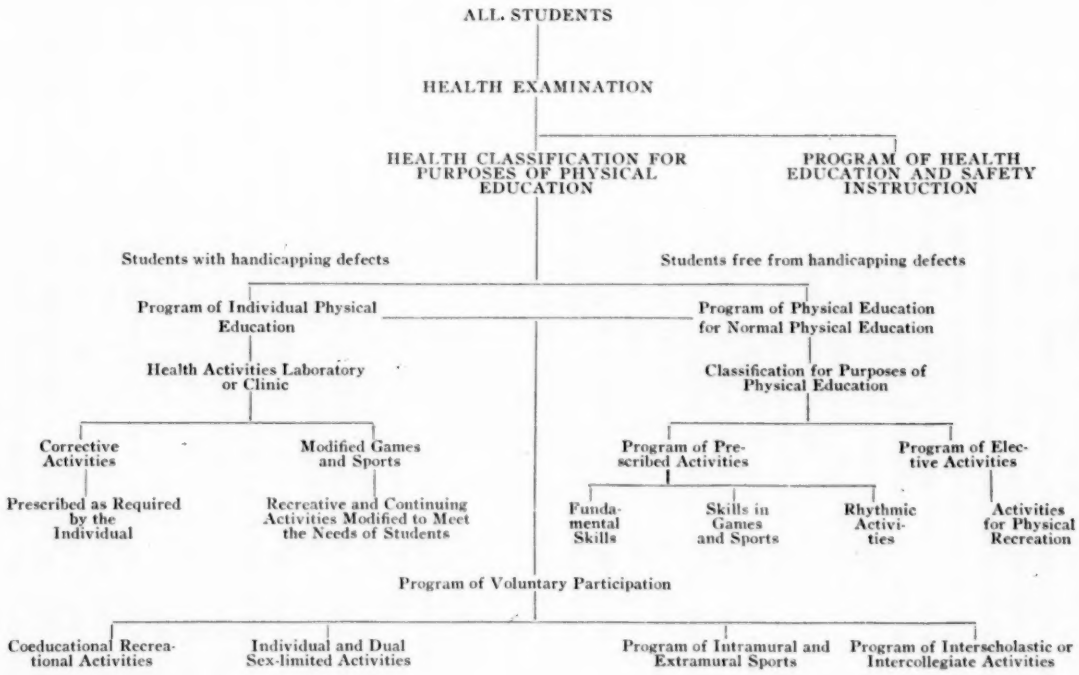
[1] Adapted from: Scott, Harry A., *Competitive Sports in Schools and Colleges*, A. S. Barnes and Company, New York, 1951, p. 187.

CHART I

ORGANIC RELATIONSHIPS OF VARIOUS PHASES OF THE PROGRAM OF PHYSICAL EDUCATION


ALL STUDENTS
HEALTH EXAMINATION
HEALTH CLASSIFICATION FOR PURPOSES OF PHYSICAL EDUCATION
PROGRAM OF HEALTH EDUCATION AND SAFETY INSTRUCTION
Students with handicapping defects
Students free from handicapping defects
Program of Individual Physical Education
Program of Physical Education for Normal Physical Education
Health Activities Laboratory or Clinic
Classification for Purposes of Physical Education
Corrective Activities
Modified Games and Sports
Program of Prescribed Activities
Program of Elective Activities
Prescribed as Required by the Individual
Recreative and Continuing Activities Modified to Meet the Needs of Students
Fundamental Skills
Skills in Games and Sports
Rhythmic Activities
Activities for Physical Recreation
Program of Voluntary Participation
Coeducational Recreational Activities
Individual and Dual Sex-limited Activities
Program of Intramural and Extramural Sports
Program of Interscholastic or Intercollegiate Activities

a more specialized and higher degree of skill and coordination. Therefore, in a sense, athletics can be considered as a further extension of physical education—shall we say post-graduate work?

Why does the current program of athletics exist in American schools? Since schools exist primarily to provide for the education of young people and to promote the general welfare of society, everything that takes place in a particular school ought to in some way, either through instruction, research, or services, contribute to the educational welfare of students and of society. It is because schools promote the general welfare that they, along with religious institutions and charitable organizations, are exempt from public taxation. Schools are not now, or were they ever intended to be, commercial institutions. Obviously, then, athletics exist in schools in order to contribute to the goals of education and to the improvement of the social order. If the program cannot be justified as an integral phase of the educational curriculum, then it is exceedingly difficult, if not impossible, to explain why it belongs in the school at all.

Athletics cannot be justified merely because they are capable of entertaining and amusing the public. Nor can they be defended on the grounds that money derived from athletic contests is essential to the financial structure of the school. In considering financial profits from athletic contests, the question must also be resolved as to the extent that an educational institution, exempt from public taxation, is justified in expecting to profit financially through the toil of nonpaid amateurs who are supposedly participating in the game because they love it.

Moreover, athletics cannot be justified for their propaganda values to the school, since the hallmark of a worthwhile institution lies not in the championship quality of its athletic teams but in its contribution to the world of scholarship, and in the qualitative achievements of its teachers and students. Athletics cannot be defended on their entertainment, money-making, or propaganda values, but must be justified upon their contribution to the educational goals of the school.

Fortunately, as a component of the program of physical education, athletics can be justified as an integral phase of the general education of all students to the extent that they are properly conceived, organized, and taught. General education may be defined as "that part of the educational program which seeks to develop in the student common understandings, skills, and attitudes needed to function effectively as a person, as a member of a family, and as a citizen in a democratic society."[2]

In seeking to justify the place of school athletics in the school curriculum, physical educators must delineate clearly and concisely the possible outcomes of participation in competitive sports and the manner in which the program can best be organized and conducted to provide the best possible educational experiences for youth. These programs must in fact, as well as in theory, contribute to the general education of all students. This means

[2] Raymond A. Snyder and Harry A. Scott. *Professional Preparation in Health, Physical Education and Recreation.* New York: McGraw Hill Book Company, Inc. 1954. p. 52.

that athletics, working cooperatively with the traditional academic disciplines, will be so conducted as to enrich the lives of students by helping them to engage in experiences designed to produce the maximum development of their total personalities; improve their abilities to live harmoniously and cooperatively with others; attain economic efficiency and independence; enjoy the privileges and discharge the obligations of enlightened democratic citizenship.

One of the troubles with athletics is that personnel in this area of education have never really been expected to solve their own problems. From the very beginning in 1852, those involved in athletics as players or teachers have been considered as interlopers in the academic domain. Traditionally, academicians have seemed to exude an air of superiority over, and a distrust of, anyone connected with athletics. As problems arose in athletics they were resolved *for* not *by* personnel responsible for the program of competitive sports. When in the course of events faculty members were forced to control athletics through committee action, much of their attention was directed toward the formulation of prohibitions designed to curb the program and everyone who was concerned with it. The "thou shalt not" philosophy of control instituted in the early days of athletics is very much in evidence today. The philosophy still seems to be "when in doubt, add a prohibition." The early development of athletic conferences was merely an extension beyond the campus of the principle of faculty control of athletics. Faculty committees on athletics, athletic conferences, and even the regional accrediting agencies for institutions of higher learning have not been completely successful in curbing the growing athletic giant. Had they been successful, we would not at this very moment be plagued with the same unresolved problems that have faced athletics from its beginning more than a hundred years ago. Although these organizations may have been unsuccessful in solving all the problems of athletics, it must not be assumed that they failed to add anything of value to athletics. On the contrary, these groups stepped into the breach when little was known about interscholastic sports and brought some semblance of order out of chaos.

The crucial issues in athletics do not lie alone in such matters as the recruitment and subsidization of athletes, or in the scholastic averages to be maintained by the participants, or even the problem of whether or not to permit spring football practice. Although it is highly important to draw a sharp line between what is amateur and what is professional in athletics, the crucial issues do not center on attempts to enforce to the letter an antiquated and outmoded amateur code which was handed down with few alterations from ancient Greece by way of eighteenth and nineteenth century England. These troublesome and reprehensible practices represent only the symptoms of more important and deep-seated malignancies which lie elsewhere. Once these malignancies are discovered and removed, the annoying symptoms will wither and die.

If the problems mentioned above are not the most important in the field of athletics, then what are the basic issues?

Should athletics contribute to the general education of all students, or should its primary function be to entertain and amuse the public by using only a few highly selected specialists in the field of sports? Should athletics be an integral phase of the educational curriculum financed out of public funds and controlled by the institution in exactly the same manner as chemistry or biology, or should it be an extracurricular activity, which uses for its selfish purposes the good name of the school, its facilities and a few highly selected students; that operates more-or-less independently outside the structure of the school and under its own philosophy, set of goals, and set of policies relating to finances, personnel and other aspects of the program?

If, as indicated by past performance, the crucial issues of athletics have not been resolved by faculty committees on athletics, athletic conferences, regional accrediting agencies, or boards of education, who can be relied upon to bring about the long-overdue, much-needed reform? The answer is that reform in athletics is a professional problem. It is the job of the professional practitioners in the field. If reform is to come at all, it must emerge from the grass roots upward rather than downward from the top as practiced in the past.

School administrators must rely for reform upon the teachers of athletic sports (many people call them coaches, but they are *teachers*) and those who directly administer and supervise the program. Indeed it is the fault of these people that the situation is not better than it is. These are the people who have intimate knowledge of the malpractices in the field. These are the people who initiate and nurture those abuses and who should be responsible for bringing them to an end. Personnel in the field of interscholastic and intercollegiate athletics should be expected to discover and solve their own problems. This is the practice in other areas of the school curriculum, and there is no good reason why it should not be in athletics.

This grass roots approach to the solution of problems in athletics involves basic issues relating to human conduct. In the first place, it proceeds on the thesis that personnel in athletics are intelligent, professionally trustworthy, and honest, and fully capable of solving educational problems. Current practice suggests that professional people in this field must be legislated into practicing honesty and integrity. While it may be true that people can be forced to conform to a code imposed from above, their own professional honesty and integrity are the most effective conduct guides. When the individual draws upon his own inner resources to govern his actions, he does right, not because he is forced to but because he sees the right thing to do. Since it is individuals who operate programs, the willing adherence by individuals to ethical principles seems to hold the key to the solution of problems of conduct in many areas of human endeavor, including athletics. If the program of athletics does not adhere to ethical practices in a given school, it is probably because the wrong people are in charge.

A sound administrative policy should recognize and support the principle that intramural and interscholastic athletics bear the same relationship to physical education that laboratory experiences do to biology, chemistry, or physics.

Co-Physical* Education: A Means to Human Stability

By SYBIL P. HILTON†

Sputnik is only one of the threats to stability in modern society. As man-made satellites whirl through outer space, we need to explore some of the stabilizing factors in life. Let us study several of the social problems that exist today and see the relationship that co-physical education has to them. The problems include divorce, old age, and increased leisure. All of these can lead to the disintegration of a stable being. Explained schematically, these forces are thus opposed:

FACTORS THAT ACT TOWARD

INSTABILITY		STABILITY (as afforded by Co-physical education)
Divorce and family life breakdown	The Individual in Society Needs Stability	Social skills
		Recreational skills
Futility of old age		Physical activity
		Increased social contacts
Poor use of leisure		Better human relations

Marriage and Family Life

Marriage is a respected institution looked to as a cornerstone of the social structure. It is simple to document the extreme fragility of the bonds of matrimony. Perhaps if boys and girls understood each other better before marriage, the divorce rate would not be so high. Understanding and respect for members of the opposite sex are included in the goals of co-physical education experiences.

What are the social advantages of combining students of both sexes in an activity class? First, they discover mutual interests of a recreational nature that can be shared now as well as in post-school life. Secondly, there is an increased awareness of the others' strength and/or agility. They discover ways of augmenting the positive aptitudes and minimizing the weaknesses of each. Third, and perhaps most important, the respect gained for physical competence is far overshadowed by the opportunities provided for the easy acquisition of social skills. The informal environment of the play situation makes courtesy an easy by-product. The qualities of consideration, cooperation, helpfulness, cheerfulness, and others usually lumped together

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* Co-physical education is more frequently called coeducational physical education. Both refer to physical education situations in which both men and women or boys and girls participate together.

as good sportsmanship are soon evident to all participants. The situation seems to foster the best qualities in both boys and girls and makes rapport in other situations easier. The co-physical education course lets boys and girls see facets of each other that differ from those revealed in the formal classroom or the dating situation. One of my men students commented, "We men have to live with women all of our lives and this is a good chance to get used to them informally."

"The family that plays together stays together" may be a hackneyed expression, but the physical educator feels that the insights gained by boys and girls in co-physical education classes may make them better prepared to enter marriage as more understanding men and women.

Elder Citizens' Problems

Whether one is seventeen or seventy, he needs to be active. The problems related to old age are visually portrayed by the sound film "The Lengthening Span."[1] The elder citizens' dilemmas are not only of economy and medicine, but of recreation. The first two problems are outside the realm of physical educators, but we can help solve the latter problems today for the oldsters and help our youngsters to be better prepared for their later years through co-physical education.

Certainly co-physical education cannot solve all the problems of geriatrics, but it can be a contributing factor toward a better adjusted active individual.

Dr. Theodore G. Klumpp[2] says that doctors used to advise removing something from the routines of aging people with whom fatigue had become a problem. Now exercise, coupled with judicious sleeping habits, is considered a better prescription.

So we see that one of the medical problems for the aging is the necessity for remaining active. In Long Beach, California, and in Florida we find many older people enjoying activities in which both men and women participate. Folk dancing for example, is a rhythmic experience that can be mild or strenuous as the situation demands. A wide array of activities including golf, bowling, swimming, dancing, shuffleboard, horseshoes, and archery can be enjoyed by people of all ages. These are but a few of the sports that are taught in co-physical education. At an early age, the seeds of interest can be planted in these games that can be pursued throughout a lifetime.

Increased Leisure

We have now mastered the environment sufficiently so that all of our time and energy need no longer be devoted just to staying alive. As individuals we no longer build log cabins, protect them, grow our own food,

[1] "The Lengthening Span," Smith, Kline & French Pharmaceutical Co.

[2] Theodore G. Klumpp, "Rest Not Always Best Fatigue Remedy," *Bakersfield Californian*, October 7, 1957.

and make our own clothes. The automobile and the grocery cart are but symbols of a sedentary life. Automation is a blessing in that it has freed us to enjoy life fully, but what is its threat?

We expend less physical effort of necessity than our ancestors, but our physical needs remain the same. In human physique, the interdependence of structure and function has not changed, nor has there been any great recent revolutionary change in physical makeup. Physical activity must be included in daily life or physical disability will ensue. Satisfying and constructive outlets for this activity drive must be found.

The October *National Education Association Journal*[3] suggests that by 1960 the average work week will be thirty-six hours. This leaves eighty hours for living, excluding time for work and sleep. What will man do with his expanded hours of free time? Many people will spend additional time in their yards and in the pursuit of household improvement. Others will be happy to develop their hobbies. But still others must be educated for worthy use of leisure time. The physical educator can help here, and again co-physical education has a role. We must find activity outlets to substitute for those replaced by the car and the grocery cart.

The junior college physical education curriculum is tailored to the above premise. In looking at the Bakersfield College program as an example keep two factors in mind. One, how many of the courses are coeducational? And two, how many of them can be pursued throughout life?

BAKERSFIELD COLLEGE PROGRAM OF PHYSICAL ACTIVITIES FOR

Men and Women		Men Only		Women Only	
Activity	No. of Classes	Activity	No. of Classes	Activity	No. of Classes
Modern Dance	1	Tennis	1	Volleyball	1
Archery	4	Swimming	5	Swimming	3
Badminton	3	Golf	2		—
Golf	6		—		4
Tennis	9		8		
Volleyball	2			Team Sports*	1
Square Dance	1	Wrestling*	1		
Folk Dance	1	Basic* (team games) football, basketball, etc.	7		
Swimming	2				
Social Dance	3				
Elementary School Games	2	Gymnastics and Tumbling*	5		
Limited Activity	1	Boxing*	2		
	—	Combatives*	1		
	35		—		
			16		

[3] Gerald Wendt, "More Time Tomorrow," *NEA Journal*, October 1957, p. 431.

* The only activities that could not be co-educational.

The total enrollment is approximately two-thirds men and one-third women. Twenty-four classes are offered exclusively for men. Since not all women are happy in co-physical education, five classes are provided for women only. But the bulk, thirty-five, of the classes are open both to men and to women students. Of the sixty-four classes offered, forty-seven are devoted to activities that men and women can enjoy together as leisure time pursuits.

Many schools offer only a limited program of this nature. The need seems to warrant more effort in the direction of co-physical education. Such education deserves an ever-increasing prominence in physical education programs, as it can help an individual become better integrated in our society by:

1. Offering him insights toward better human relations.
2. Giving him a variety of recreational interests and skills that can enrich his leisure time.
3. Exposing him to activities that can be a pleasurable means of physical maintenance throughout his lifetime.
4. Educating him to recreational interests that act as social wedges throughout the world.

If the junior college is on the right track by emphasizing the co-physical educational activities that can be pursued in one's leisure, perhaps there is an implication that more emphasis should be placed on co-educational activities in the high school program.

POSTULATES FOR TECHNICAL EDUCATION

Educators concerned with vocational-technical education list at least ten postulates as a basis for a good program. They are:

1. Technical training's first goal is to fit a student to a good job he can handle well.
2. Teaching must keep up with constant changes in jobs and practices.
3. The Big-Three Solution to the shortage of technicians—pre-employment training, upgrading, retraining.
4. Training must combine skills with general and technical knowledge for a salable package.
5. Most vocational-technical education flowers at the post-high school level.
6. Advisory committees must be taken off the honorary letterheads and into daily headlines.
7. Technical education is not to train engineers half way, but to make technicians all the way.
8. Equipment should be realistic and provide a wide variety of job experiences.
9. Instructional material for vocational-technical classes should be improved.
10. The fruits of research should be plucked early, fed to the student when ripe.

After School, What?

By RICHARD GOULD*

Much criticism has been offered against spending tax dollars for building and programing youth "country clubs." There are many reasons for this opposition to school construction, varying from a "sour grapes" attitude of the comparatively limited school program before the wars to the cry that Johnny isn't really increasing learning in proportion to the money being spent on him. If the individual can learn to add two plus two in a quonset hut as well as in a fifty thousand dollar building, why not use the cheaper and spend the tax dollar elsewhere?

An educator could well defend himself against an attack of this sort by elaborating on the facts that learning is best effected only in the optimum environment, that environments help shape personalities, and where there is a good personality, there is no delinquent; or that progressive education can mean progressive and independent minds, essential to the good actions of a democratic nation.

But there is one phase of education that perhaps is open to more criticism than any other and which is harder for the unorientated to defend. This deals primarily with the education of the physical. What are the answers to questions like: Why does the student spend more time in physical education classes than in any other? Why is more money spent on physical education facilities than for those of almost any other single department? Why spend so much for purchase of school land, if classroom buildings occupy so little of the total area? In other words, what is the value of physical education—how can it be justified?

It is hard to justify something that in itself shows much need for improvement. In many ways physical education can be placed in this category. Even basic physical education philosophies vary greatly. Such a lack of understanding is in itself hard to defend. These philosophies will become reconciled in time, but can physical education take the time? Mostly because of the war baby crop, school building is at its zenith now, and physical education is presently getting its share of dollar allocation. But unless the most is made of its programs, the department may find an increased reluctance for proportionate appropriations in the future. Some of the problems and weaknesses that exist are:

1. The lack of scientific research, of tests and measurements, has made it difficult to pinpoint an individual's progress or to set Statewide norms and standards. Physiologically, the individual does not know what is expected of his body.

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2. Philosophies dealing with highly competitive athletics and the physically-gifted child need to be standardized.
3. Some physical education programs lack any instruction at all in the various physical activities.
4. Since every sport requires a different physical coordination, an exposure of the individual to four or five sports isn't enough. For an individual to achieve anything near the general concept of total fitness, over-all motor ability and neuromuscular activity must be developed, usually by exposure to twenty or thirty activities.
5. Carry-over activities are not taught enough. It is important to the safety and health of a nation for its people to be physically fit at forty as well as at twenty, and few at this age still engage in competitive football, basketball, or baseball.
6. Added interest should be placed in intramural programs, in which everyone gets a chance to compete, as well as to learn.
7. The field of co-educational physical education needs much development and clarification.
8. Some physical educators lack ambition and tend to ride along on their laurels, rather than to strive openmindedly to achieve well-rounded programs.
9. There are a few administrators who tend to be so skeptical of physical education values, that they glorify the mental to the exclusion of the physical.
10. To achieve better relations between the physical education department, other departments, and the administration, closer coordination in the planning of all activities and programs is needed.
11. Results from carefully conducted physical fitness tests taken in physical education classes can be helpful in analyzing general health conditions and therefore should be kept on file with school records of students' health.
12. Finally, very few schools achieve optimum use of physical education facilities, although the trend is to better utilization. Schools are beginning to keep swimming pools open on holidays and during the summers; organized youth baseball leagues are getting more school fields; and other facilities are being used for physical education activities too. But not enough. Youths roam the streets in the evening because they have nothing better to do. Why couldn't more gyms be used for basketball, badminton, dancing, weightlifting, and other activities at night and in the summer, since for many people these would be their only leisure times? Supervision could be financed if only by a ten to twenty-five cent admission charge. Other recreational facilities can be made available if the schools will cooperate more closely with the community; and it would seem better to have good facilities depreciate because of use, rather than because of non-

use. Public relations can be improved as well in this manner as by talks to community groups. There can be opportunity for physical education instruction besides supervised recreation at this level for those who want it—even to the extent of having physical education classes incorporated into night and summer school programs.

Each school has its own particular problems and a solution in one case may not be suitable to an identical problem in another. Yet almost any district can improve upon the conditions enumerated above. The public is quick to point out defects, especially where tax money is involved. While this is as it should be for the health of any democratic institution, it can prove embarrassing.

Besides mending its weaknesses, any phase of spending representative of such an investment as physical education should advertise its value. Physical education has been given a tremendous boost by the widely publicized findings of the Kraus-Weber fitness tests, although the validity of generalizations from such limited tests is undoubtedly being over emphasized. Rash statements are continually being made, such as "Johnny can't read or spell" or "Johnny is physically a softie." The latter has even merited a special nationwide investigation committee appointed by the President. The publicity resulting from the Kraus-Weber tests and fitness committees might be said to be contributing to a renaissance in physical education. Certainly they have served to awaken the public at large. More people than ever are concerned with physical education philosophies; wherever there is interest, there also lies opportunity.

Physical education must take advantage of this outstanding opportunity and meet its challenge to become one of the most organized and strong phases of education. It well can, if physical educators fully exploit the opportunities for justification of physical education presented by society itself.

For instance, the increased mechanization of American society has made man's life tremendously easier. He no longer works from dawn to dusk plowing fields, chopping wood, and milking cows. His duty is now represented by a specialized activity that may involve little or no manual labor or physical exercise.

Indeed, a child rides a bus to school instead of walking; a woman pushes a button to start the dishwasher and telephones to have a new vacuum cleaner delivered; a man wears a coat and tie to work and spends all day sitting behind a desk in an increasingly urban society. It can be seen that not only is time less strenuously spent, but because of innovations like the forty-hour week, more time is available to spend. It then becomes a question of whether these extra hours are spent in a manner most conducive to the health of a nation, or whether they are spent merely watching a suspense movie on television or talking for a half hour on the telephone in useless gossip. How can physical education help in this situation?

While there is full employment, many work in jobs that deny opportunity for self-expression and physical exertion; good salaries are paid for

short hours of routine work. A supplement is needed, and self-expression can be well utilized in physical activity which provides constant opportunities for individual and team leadership and strategic planning. Big industry has found a definite if only partial answer in the field of industrial recreation. But many of the masses are not exposed to this idea and necessarily lack a clear concept of the theory it involves. It is not that man lacks an environment in which to exercise leisure hours creatively, but rather that he is still learning how to do so.

This discussion on how to spend leisure time creatively leads to another problem which physical education is potentially well-equipped to overcome. Whenever youths of school age make destructive rather than constructive use of their increasing leisure, they are referred to as delinquent. Here physical education can best prove itself, for everything a juvenile delinquent needs, good physical education can provide. Here more than anywhere is the opportunity to experience fair play, sportsmanship, the art of winning and losing, competitiveness, recognition, personal worth, humility, discipline, leadership, followership, character development, acting under pressure, practical aspects of health, team play, and the unity that breaks down barriers of race, creed, and opportunity. Not only are these important to youths while they are in school, but they are the ideals which must be learned if the individual is to adjust to a future which may contain duty in the armed forces, and college, family, and community living.

How many homes can adequately teach all that a youth needs to prepare him for such a future? Too many are broken or troubled as it is. How many communities have facilities to cope with deviates from these ideals? Remember, this is mostly the population that doesn't attend church, that has never heard of Boy or Girl Scouts or Y.M.C.A., or that doesn't use recreational facilities, because it doesn't know how to enjoy them. If family and community alone cannot provide the needed experiences, there remain two places where the individual can be matured before facing life alone.

One of these is the armed services. But here an individual is full grown, and most of his habits and ideas are already formed and are hard to change. The one way to effect this change is through discipline—strict military discipline. Would it not be much easier and even more effective to learn how to be a good and responsible citizen earlier and more gradually in life?

The other place where a person is subjected to surroundings potentially able to teach these necessary ideals is the school. Thus, the school is left with a tremendous responsibility, for it must teach an individual how to adapt to his environment. Physical education, as a part in the total educational process, shares this responsibility and can be as effective in meeting it as any other single phase of education. Even more, physical education is in a unique position, for the youth is in a more natural play situation, less structured than in the classroom.

Physical education, then, is faced with a great challenge; and as long as this challenge is increasingly well met, the great faith men have placed in it will not falter. This is as it should be, for we, as did the Greeks, know that

the mind and the body are inseparable and that the health of one depends upon the well-being of the other.

The situation is similar to an opponent's fumble on the goal line, in that there remains only the capitalization of the opportunity to change weakness into strength. The challenge and incentive could not be greater, nor could the chance for success. Physical education can, with a little more time and effort on its part, make a greater contribution to teaching our youth how better to live in a confused environment. When it does this, the arguments against increased expenses and inadequate programs will be rather ineffectual.

PROBLEM OF THE TECHNICIAN

The Missing Link.—Vocational educators have a problem as clear cut as it is baffling, namely, how to find and train the large number of technicians which industry, engineering, and science are demanding.

A technician has been defined as the link between the egg-head and the skilled hand. Define egg-head as the professional engineer or scientist, and the skilled hand as the person who performs the tasks of industry and technology, and you find a big gap which can be filled only by a person who can understand both the professional and the underprofessional. He is the sub-professional who, for want of a better term, is called "technician."

As for a definition of this much-wanted individual, one goes as follows: "An individual who assists with technical details in a trade or profession. Uses tools, instruments, and special devices to design, illustrate, fabricate, maintain, operate, and test objects, materials, or equipment. Performs mathematical and scientific operations, reporting on and carrying out a prescribed action in relation to them; examines and evaluates plans, designs, and data; determines action to be taken on the basis of analysis; assists in determining or interpreting work procedures and maintaining harmonious relations among workers."

The U.S. Office of Education is in the forefront of the search for this still elusive "expertician." Its Vocational Education Division has sponsored a nationwide conference to discover ways for increasing the supply of technicians. And during the latter part of 1957 and most of 1958, state and regional conferences are being devoted to the same tasks under federal leadership.

Here is a capsulated list of problems and some solutions proposed so far:

Why the concern over the technician? Because the American economy and armed strength depends on complex machines requiring large numbers of trained people to design and operate them. The much advertised shortage of scientists and engineers may actually be a shortage of technicians to put the ideas of the professionals into effect.

Can future supplies of technicians be found? Yes, from among able high-school graduates; from among skilled workers already employed; and from among older workers who have been displaced by technological change. But each of these groups will need new training, new courses of study, new types of equipment.

Can the public institutions of education do the training job? Yes, if helped by industry. Vocational high schools, community colleges, adult extension courses, and specially organized short courses can do the job, aided by part-time instructors and equipment from industry.

What ingredients will have to be included in the curriculum for training technicians? Lots of science and math; problem-solving experiences; skills in communicating ideas; extensive use of testing and experimentation equipment.

—*Education Digest*, November 1957

Why Education Code 10124?

By NELLIE MAE LOMBARD*

"I can't understand why teachers with college educations are hired to direct the exercising of children. Why, when I was a boy I walked a mile and a half to and from school every day. I didn't need to exercise *in* school." So complained Mr. Small, a successful business man of sixty-three, as he criticized the schools of today.

What Mr. Small didn't stop to analyze was the environment of his childhood as contrasted with that of his grandchildren. Yes, he walked, but he did so safely because the number of automobiles in his home town could have been counted on his fingers. In the winter he took his sled to school, coasting down the slopes, playing for hours after school, snowball fighting, building snow forts, bobsledding down hills, going ice skating on near-by ponds. In the spring he played marbles on his way home, acquiring a choice collection of "glassies," "aggies," and "cat-eyes" before the season was over, although, of course, he never played "for keeps." Later he went for tramps in the nearby woods or fields, finding lamb tongues, trilliums, and bachelor buttons, or picking wild strawberries or blackberries in season. In the summer he went swimming, fishing, or hunting with the other boys, helped take care of the lawn, tilled his own vegetable and flower gardens, picked cherries or hops for spending money, played run-sheep-run with the neighborhood gang in the evenings, and after going to Ringling Brothers' Circus, rigged up a gymnasium in the loft of the barn with trapezes, rope ladders, and chinning bars. He raised doves and rabbits and had a pet gray squirrel. Yes, Mr. Smith had plenty of exercise in his childhood without the benefit of Education Code 10124.[1]

Yet, isn't society with 10124 merely trying to supply for the modern child the benefits Mr. Small received naturally? He learned to get along with others, how to observe and be governed by the rules of the game; he learned to be a leader or a follower as occasion required; he exercised his muscles and developed skills in various activities. Doesn't society recognize the moral and spiritual values, the socializing and integrating influence of play? Isn't it attempting to give these benefits to all children in modern times by providing hours of play and wholesome conditions for exercise? Isn't it interested in providing opportunities for all to acquire individual strength, balance, flexibility, agility, and endurance in group situations that develop self-confidence, good manners, and courtesy, while the individual learns to give and to take as he works with others for group success?

In the physical education programs, unhappy, socially maladjusted girls, who seem shy and lonesome in academic classes, often find satisfaction and

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[1] Requirement for physical education.

emotional development and stability that go far in making them good citizens with sound moral values. They have had to assume individual responsibilities and a sportsman-like-attitude whether they won or lost. Many of them who have not succeeded scholastically, as well as those who have, find new friends and new interests in school by being chosen as squad leaders, team captains, team managers, members of drill or "pep" squads, or just by playing the games in class. Through their newly found self-confidence they enlarge their friendships in other school activities, because normally they desire to be liked and accepted by their classmates. The informality of the physical education class, the rhythm and creativeness of the dance hour, the challenge and competition of sports, and the friendliness of the G.A.A. programs do influence girls' personal and social development.

Boys in their teens naturally desire to look up to a man they admire. The "gym" teacher or the coach is often the man the boy chooses as his hero, for the boy from a broken home, the one whose father is too busy to counsel with him, the one with poor home conditions needs a *man* friend to encourage him to spend his non-class time in constructive ways. Such a boy desires to belong to a "gang," to work and play with others. He has a lot of extra energy, much emotional strain, often a hatred for school or society. The "gym" teacher or the coach has many opportunities to channel these non-social feelings and energies in directions which will keep this boy from being a delinquent; he can so interest him in sports and in acquiring physical skills that he will spend his leisure time developing these interests instead of in ways that would eventually make him a detriment to society.

Sometimes the academic teacher notices that a boy needs to pay more attention to personal cleanliness, or he realizes that another needs to develop an interest in some outdoor activity because he is too one-sided in his studying and too shy to make friends in the classroom. At times he finds out that the boys who are not preparing their homework are spending *too* much time training for football or tennis. A short teacher conference with the boy's "gym" teacher will often result in improvement, for boys pay attention to the coach's admonition or advice, casually and informally given.

Yet many of these men really haven't time enough for *all* boys because the public, e.g., the townsmen, demand that they produce creditable teams in football, basketball, baseball, and track. Perhaps if the public insists on winning teams, it should expect to pay extra for them by hiring more teachers, some for the restricted coaching of the teams of the school, others for helping the non-team boys, the majority, to attain the social, physical, and psychological growth possible in their classes. Yet a perfect physical education program can be ruined by inadequately prepared teachers or by classes so large that even well-qualified ones are unable to promote the aims they desire for their students.

Any adviser of a girls' club of forty members, or a teacher of a class of a like number of boys and girls knows of the abundant energy, the restlessness, the high enthusiasms for modern dancing, for "bops," for "rock'n-roll," for records, for football heroes, for "boys," for "girls," for eating,

for chattering, for last night's party that are bubbling over in every child. Teachers realize that young people need activity classes to convert some of this enthusiasm into constructive physical and social growth. They shudder to think about having these youngsters in class if there were no outlet for their restiveness.

Not even teachers spend all their time in academic pursuits. Modern living is such that everyone needs for leisure hours a hobby to relieve tensions and to provide for wise use of leisure time. The sports program in which the young person participates and learns many kinds of games or sports often gives him the chance to decide on a hobby that he can follow for life. In one instance, the requirement that each girl had to participate in a sport during her physical education hour made it necessary for a one-time polio victim to choose a restricted skill to learn. Archery proved to be so fascinating to her that she eventually became an expert, winning local state, and national prizes. Her hobby made her forget self pity and encouraged her to try harder to improve her posture and to overcome her physical handicap. Her "forced" learning of a skill was a definite factor in improving her social, mental, and physical outlook on life. Today she is a happily adjusted young lady.

Often academic teachers notice the bad postures of students, but it is the "gym" teacher who is interested in helping to correct them. Posture pictures taken at the beginning and end of a school year often show the tremendous improvement which has been made. What could help to promote self-confidence more than a mirrored reflection of oneself, which shows an erect, graceful, well-functioning body?

Yes, as an academic teacher, a teacher of English, the writer disagrees with Mr. Small. She is in favor of Education Code 10124. She feels that she needs the help of the physical education teachers of her students to help develop the *whole* individual. She realizes that in sport, play, creative dancing, or in other physical activities, boys and girls can be helped to acquire better moral, spiritual, and social values, that they can learn good sportsmanship through actual participation, that they have many opportunities in these informal classes for making social adjustments and for developing tolerance toward others with whom they work or play.

Preparation for living in a democracy requires that modern young people be given in school the opportunities which Mr. Small experienced many years ago in a small town.

NEW PUBLICATIONS

New books and other publications received in the *Journal* office:

A Handbook for Instructional Leaders on the Use of Encyclopedias in Schools. A Report of a Workshop held at the University of Washington, Aug. 1956. 31 pp.

A Teacher's Guide to the P.T.A. Chicago: National Congress of Parents and Teachers, 1957. 80 pp. 50 cents.

Educators Guide to Free Films—Seventeenth Annual Edition, 1957. Randolph, Wisc. Educators Progress Service. xii + 625 pp. $7.00.

Educators Guide to Free Slidefilms—Ninth Annual Edition 1957. Randolph: Educators Progress Service. vii + 204 pp. $5.00.

Elementary Teachers Guide to Free Curriculum Materials—Fourteenth Annual Edition 1957. Randolph: Educators Progress Service. xv + 319 pp. $5.50. Units on Free Materials to use with above Guide. 52 pp.

Film Catalog. University of Southern California. Prepared by Film Sales, Department of Cinema, University of Southern California. 87 pp. 1957.

Fries American English Series—Book Six (Grades 10–12) Boston: D. C. Heath and Co., 1957. xii + 548 pp. $3.48. Teachers Guide to above. ix + 262 pp. $4.50.

Hansen, Kenneth H. *High School Teaching.* New York; Prentice-Hall, Inc., 1957. x + 421 pp. $5.75.

Knapp, Clyde & Ann E. Jewett. *Physical Education: Student and Beginning Teaching.* McGraw-Hill Book Company, Inc., New York. 1957. 303 pp. $4.75.

Kraus, Richard. *Play Activities for Boys and Girls.* New York: McGraw-Hill Book Company, Inc. 1957. xi + 236 pp. $4.95.

Mort, Paul R., and Ross, Donald H. *Principles of School Administration,* second ed. New York: McGraw-Hill Book Co., Inc., 1957. xv + 451 pp. $6.00.

Prescott, Daniel A. *The Child in the Educative Process.* New York: McGraw-Hill Book Co., Inc., 1957. xiii + 502 pp. $6.50.

Sands, Lester B., and Gross, Richard E. *History of Education Chart.* Stanford: Stanford University Press, 1957. $2.50.

Shurter, Robert L. *Written Communication in Business.* New York: McGraw-Hill Book Company, Inc., 1957. viii-+ 490 pp. Ref. 90 pp. $6.00.

Strang, Ruth, and Bracken, Dorothy K. *Making Better Readers.* Boston: D. C. Heath and Co., 1957. 384 pp. $4.75.

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